ORDER NO. MKE0310854A1

B2

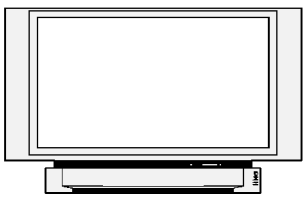
Service Manual

Multi Media Display

Simplified

PT-60LC13

Please file and use this manual together with the service manual for Model No. PT-50LC13, Order No. MKE0307850C1.



PbF
Solder Lead free

SPECIFICATIONS

ITEM	SPECIFICATION
LCD panels	0.9" Poly silicon TFT LCD Panel X 3 RGB shutter method, using Translucent TN crystal panels
Drive method	Active Matrix 4:3 Aspect Ratio panels, TFT (Thin Film Transistor)
No. of pixels	921,600 (1,280 X 720) stripe pixels X 3 panels (16:9)
HID Lamp	100 W HID (High Intensity Discharged) Lamp
Display	60 inch, 16 : 9 aspect ratio
Television System	EIA Standard (525 lines, 60 fields) NTSC Color Signal
Video input signal	1 Vp-p, sync negative, 75 Ω terminated
S-Video input signal	Y (luminance signal): 1 Vp-p, sync negative, 75 Ω terminated C (chrominance signal): burst 0.286 Vp-p, 75 Ω terminated
RGB input signal	Video signal: RGB Analog (0.7 Vp-p, 1.0 Vp-p with sync on green, 75 Ω) Sync signal: H/V separate, H/V composite H-Frequency: 31.47 kHz-68.68 kHz (TTL Level) V-Frequency: 56.25 Hz-85.08 Hz (TTL Level)
Component Video input signal	Y: 1.0 Vp-p, with sync, 75 Ω P_B, P_R: ±0.35 Vp-p, 75 Ω. YP_BP_R Signal: 480 i H-Frequency 15.73 kHz V-Frequency 29.97 Hz 480 p H-Frequency 31.47 kHz V-Frequency 59.94 Hz 720 p H-Frequency 45.00 kHz V-Frequency 60.00 Hz 1080 i H-Frequency 33.75 kHz V-Frequency 30.00 Hz
Audio input signal	0.5 Vrms
Audio out	0.5 Vrms

ITEM	SPECIFICATION
Tuner	Broadcast Channels: VHF 2~13, UHF 14~69 CABLE Channels: Midband A through I (14~22) Superband J through W (23~36) Hyperband AA~EEE (37~64) Lowband A-5~A-1 (95~99) Special CABLE channel 5A (01) Ultraband 65~94, 100~125
Connectors	S-Video Input: Mini DIN 4-pin Video Input: RCA Pin Jack RGB Input: D-Sub mini 15-pin Component Video Input: 3 RCA Pin Jacks DVI input: DVI 1.0 (24 pin) Audio Input: M3 Stereo mini Pin Jack 2 RCA Pin Jacks (L-R) S-Video Output: Mini DIN 4-pin Video Output: RCA Pin Jack Audio Output: M3 Stereo mini Pin Jack 2 RCA Pin Jack (L-R)
Speaker	2 Speakers 30 W [15 W + 15 W] (10 % THD)
Card Slot	SD Card slot: SD Card, Multi Media Card PC Card slot: Compact Flash, Smart Media, Memory Stic, xD Picture Card
Power Source	AC 120 V, 60 Hz
Power Consumption	Power ON: Approx. 220 W (When audio is at maximum) Power OFF: Approx. 0.4 W (When cooling fan is stopped)
Operating Condition	Temperature: 0 °C~40 °C (32 °F~104 °F) Humidity: 20 %~80 % (non-condensing)
Weight	46 kg (101.4 lbs.)
Dimensions (W x H x D)	1,637 mm x 1,050 mm x 459 mm (64-7/16 inch x 41-6/16 inch x 18-1/16 inch)
Solder	This model uses lead free solder (PbF).

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

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⚠ WARNING

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It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1. DIFFERENCES BETWEEN PT-60LC13 and PT-50LC13

1.1. COMPARISON CHART

1.1.1. MECHANICAL REPLACEMENT PARTS LIST

Ref. No.	Section No.	Pcs/ set	PT-50LC13 → PT-60LC13			
			Part No.	Part No.	Part Name	Remark
21	5	1	LSXA0528-HBS	LSXA0540-HBS	PROJECTION UNIT	RTL
22	3,4	1	LSYK1214	LSYK1238	SCREEN UNIT	MKA
26	1	0→1	- - - - - - - - - -	LSGV0073	60 REAR COVER	MKA
51	4	1	LSGY0165	LSGY0183	ESCUSHION	MKA
52	4	1	LSGP0365	LSGP0373	LENTICULAR SCREEN	MKA
53	4	1	LSGP0366	LSGP0374	FRESNEL LENS	MKA
54	4	2	LSXA0538	LSXA0541	SCREEN PLATE H UNIT, STEEL	MKA
55	4	2	LSXA0537	LSXA0542	SCREEN PLATE V UNIT, STEEL	MKA
58	3	1	LSDL0243	LSDL0247	MIRROR	MKA
61	3	2→3	LSGQ0092	LSGQ0092	MIRROR HOLDER H	MKA
62	3	2	LSYF0541	LSYF0543	MIRROR HOLDER V UNIT	MKA
63	3	1	LSMA0700	LSMA0715	BACKCOVER PLATE, STEEL	MKA
66	3	1	LSJA0474	LSJA0475	CONNECTOR CABLE W/PLUG	MKA
101	9	1	LSPG1547	LSPG1603	CARTON BOX	MKA
102	9	1	LSPG1548	LSPG1605	CARTON BOX BOTTOM	MKA
103	9	1	LSPN0339	LSPN0418	CUSHION TOP L, STYROFOAM	MKA
104	9	1	LSPN0340	LSPN0419	CUSHION TOP R, STYROFOAM	MKA
105	9	1	LSPN0341	LSPN0420	CUSHION BOTTOM L, STYROFOAM	MKA
106	9	1	LSPN0342	LSPN0421	CUSHION BOTTOM R, STYROFOAM	MKA
107	9	1	LSPG1549	LSPG1604	INSIDE CARTON	MKA
108	9	1	LSPF0111	LSPF0123	BAG, POLYETHYLENE	MKA
113	9	1→0	LSPN0430	- - - - - - - - - -	FRONT CUSHION	MKA
401	1,2,3,4	131 ↓ 151	XTV4+16A	XTV4+16A	TAPPING SCREW, STEEL	MKA
464	1	0→6	- - - - - - - - - -	XTV4+20A	TAPPING SCREW, STEEL	MKA

Definition of Parts supplier:

1. Parts with mark "MKA" in the Remarks column are supplied from MKA.

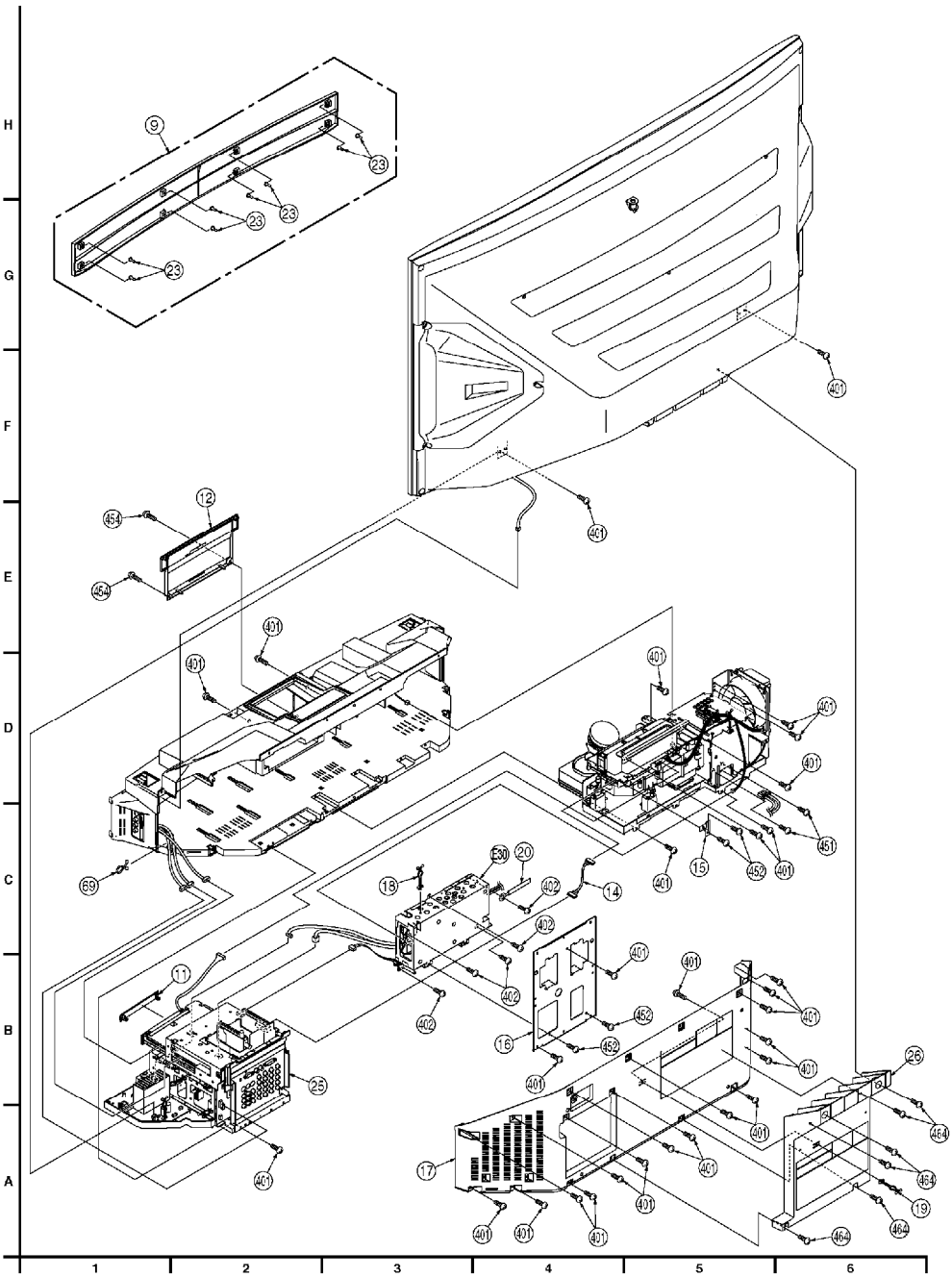
2. Parts without mark in the Remarks column are supplied from MKE.

2. EXPLODED VIEWS (CABINET SECTION)

2.1. MAIN PARTS SECTION

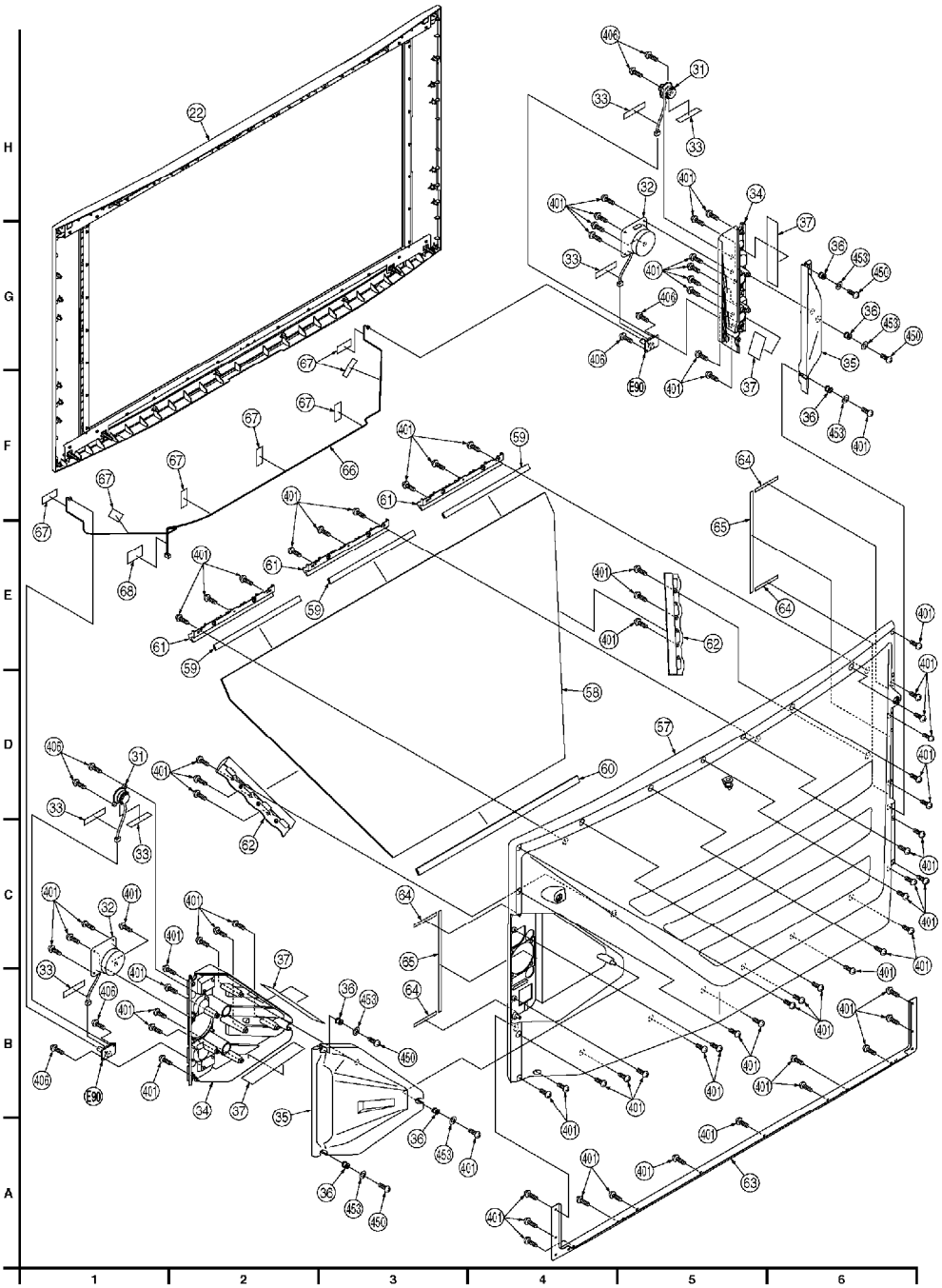
❶ MAIN PARTS SECTION

Note: Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.



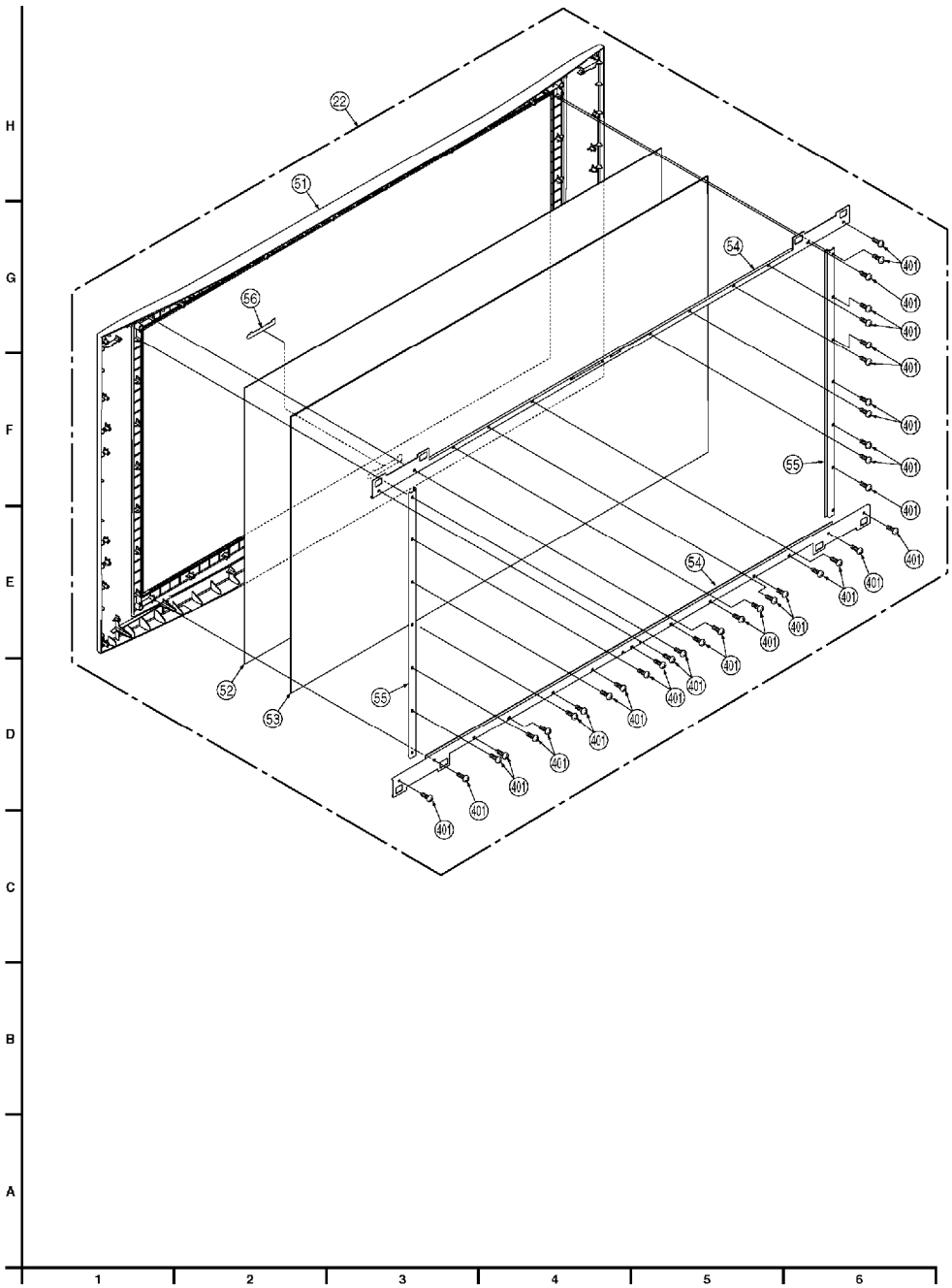
2.2. DISPLAY SECTION

❸ DISPLAY SECTION



2.3. SCREEN SECTION

❹ SCREEN SECTION



3. DISASSEMBLY / ASSEMBLY PROCEDURES

3.1. CABINET SECTION

REMOVAL OF THE BALLAST C.B.A. AND THE TV/TUNER UNIT FROM THE CABINET

1. Remove the Rear Cover by removing the 20 Screws (401, 464).

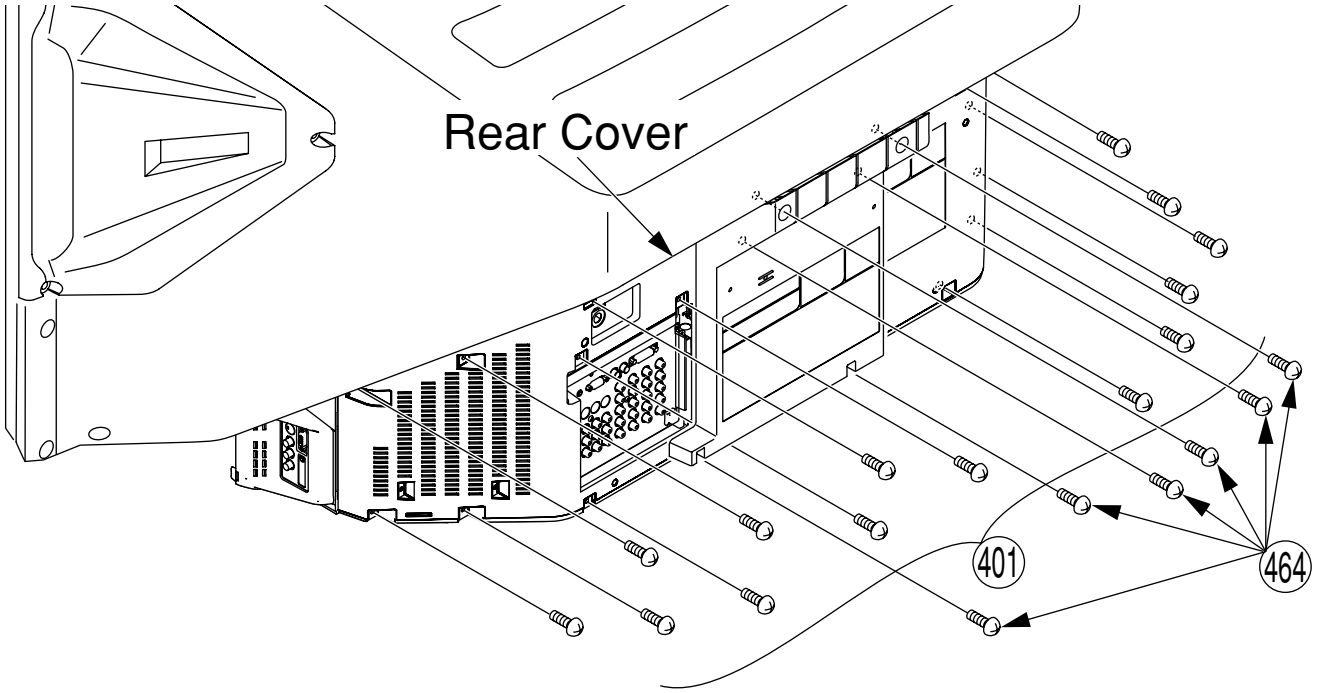


Fig. D1-1

REMOVAL OF THE SCREEN UNIT AND THE SPEAKER FROM THE DISPLAY

4. 1) Remove the Speaker-L and the Speaker-R by removing the 6 Screws (401, 450) and 6 Washers (453), and disconnect the connectors P4553.
   2) Remove the Screen Unit by removing the 22 Screws (401).

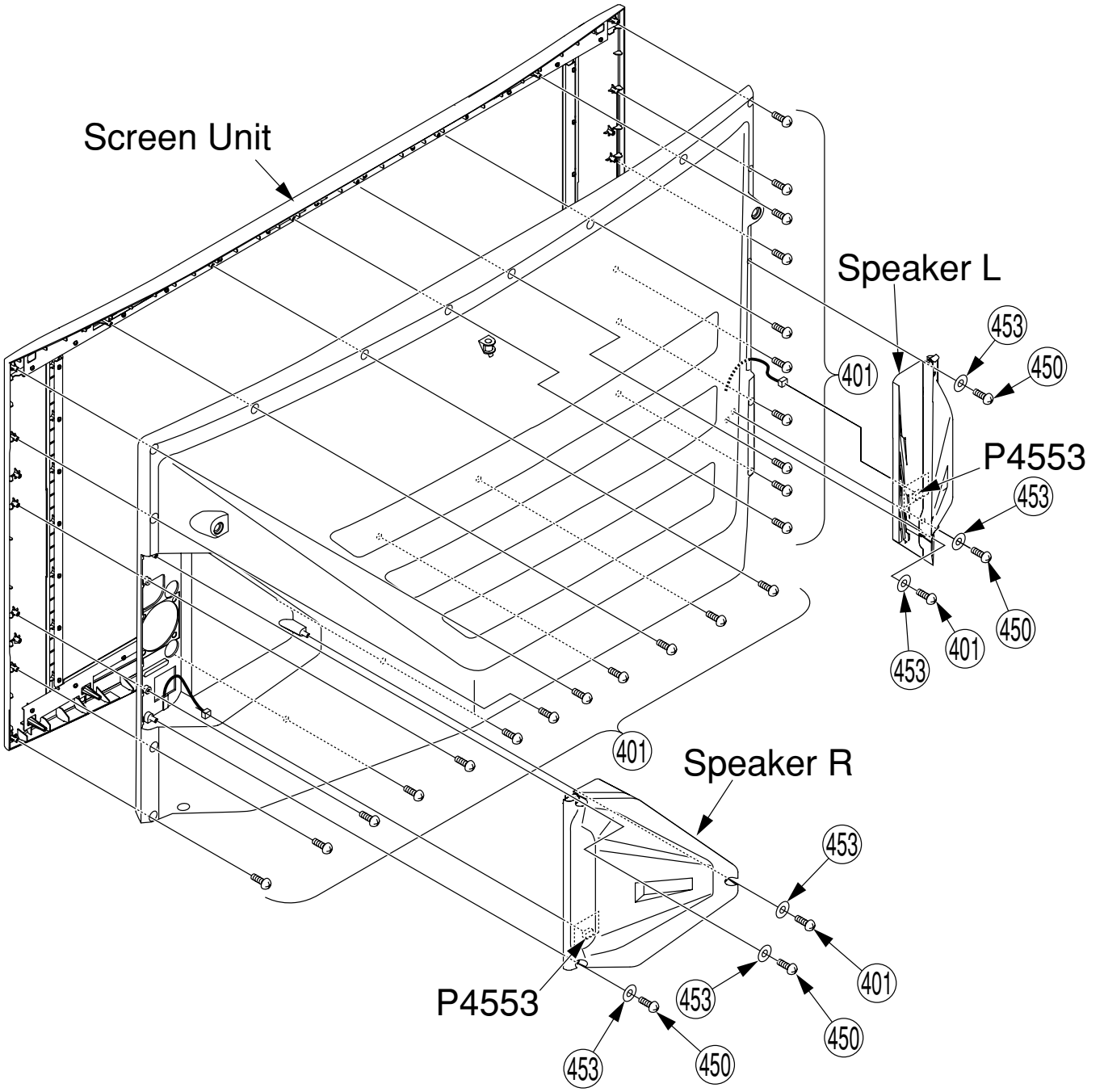


Fig. D4-4

5. Remove the 2 Screen Plate H and 2 Screen Plate V by removing 40 Screws (465), and remove the Fresnel Lens and the Lenticular Screen.

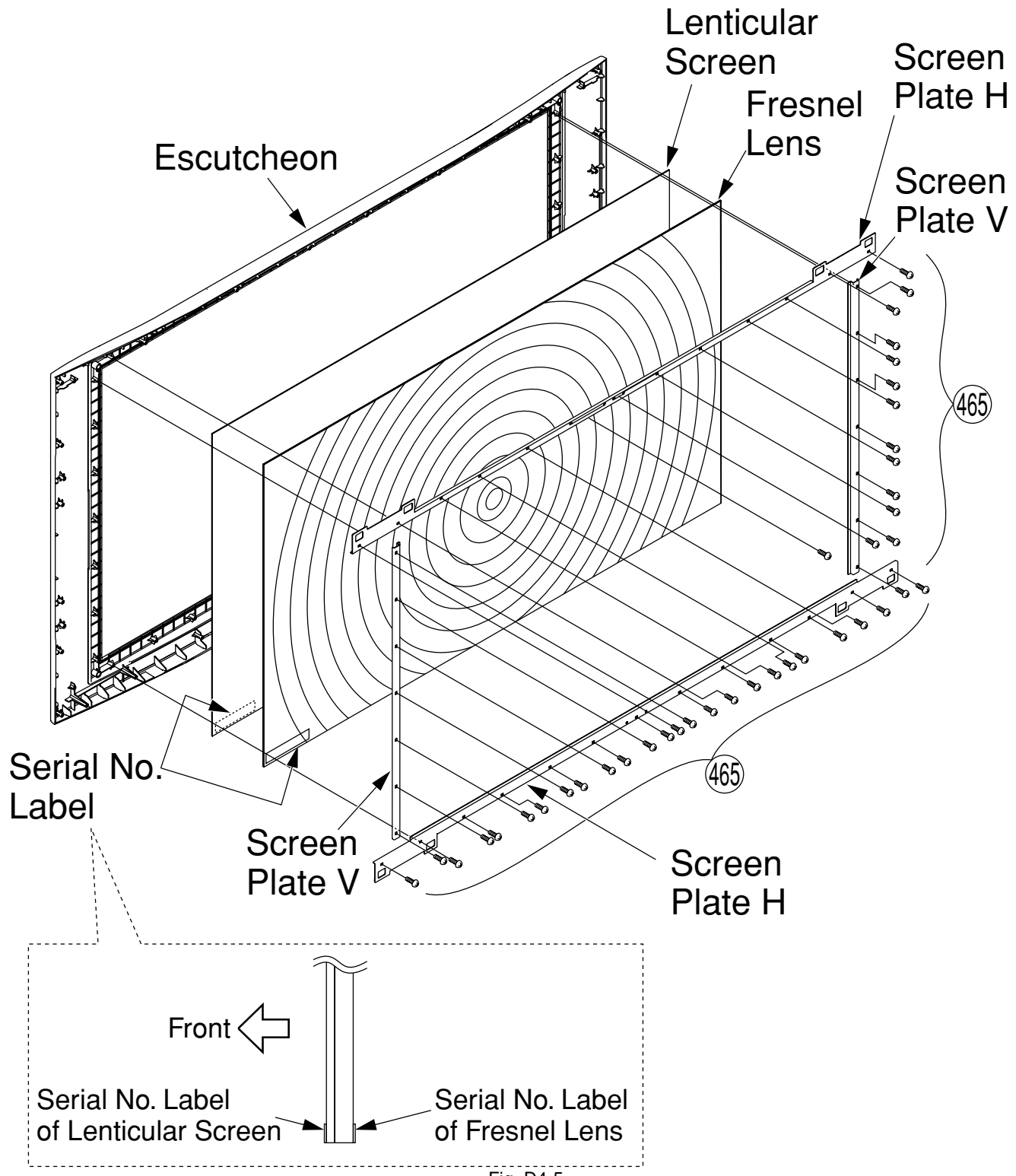


Fig. D4-5

Reassembly Note:
Install them so that Serial No. Labels are on the each outside as shown above.

Replacement Note for Screen Unit:
The Screen Unit is supplied as a unit, or the individual parts (Fresnel Lens, Lenticular Screen) in the Screen Unit are also supplied. When replacing the Fresnel Lens and the Lenticular Screen, take care that dust, etc., does not adhere between the Fresnel Lens and the Lenticular Screen. Due to this risk, it is strongly recommended to replace the Screen Unit as a unit.

REMOVAL OF THE MIRROR FROM THE BACK COVER

1. Remove the Screen Unit. Refer to Steps 1~4 in "REMOVAL OF THE SCREEN UNIT AND THE SPEAKER FROM THE DISPLAY."
2. 1) Remove the 3 Mirror Holder H and the 2 Mirror Holder V Unit by removing the 15 Screws (401).
   2) Remove the Mirror from the top by releasing the Back Cover slots.
   Note: Be careful that the Mirror does not fall down when removing.

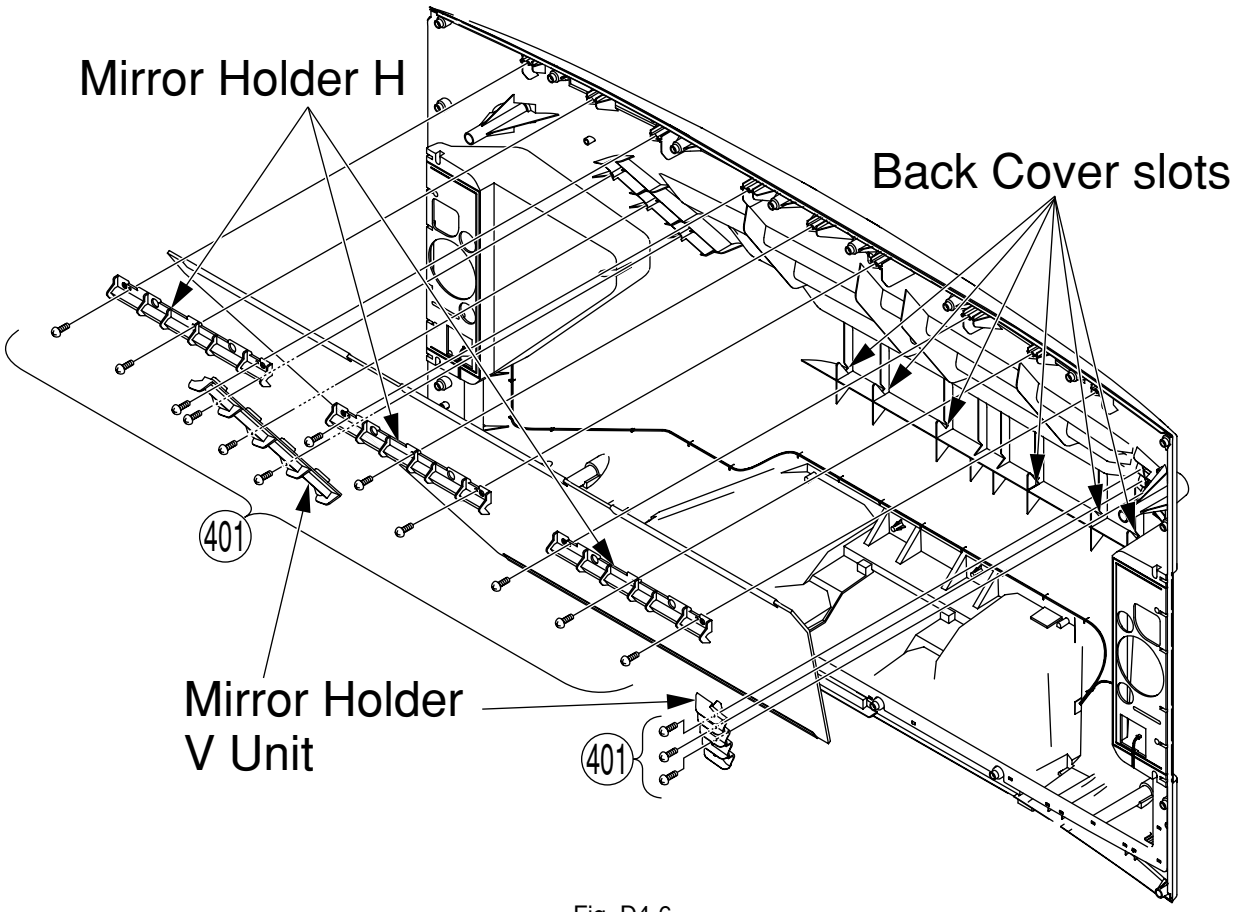


Fig. D4-6

Reassembly Notes for Mirror:
Install the Mirror as following procedures:
1) Place the 4 sheets on the top and bottom edges of the Mirror.

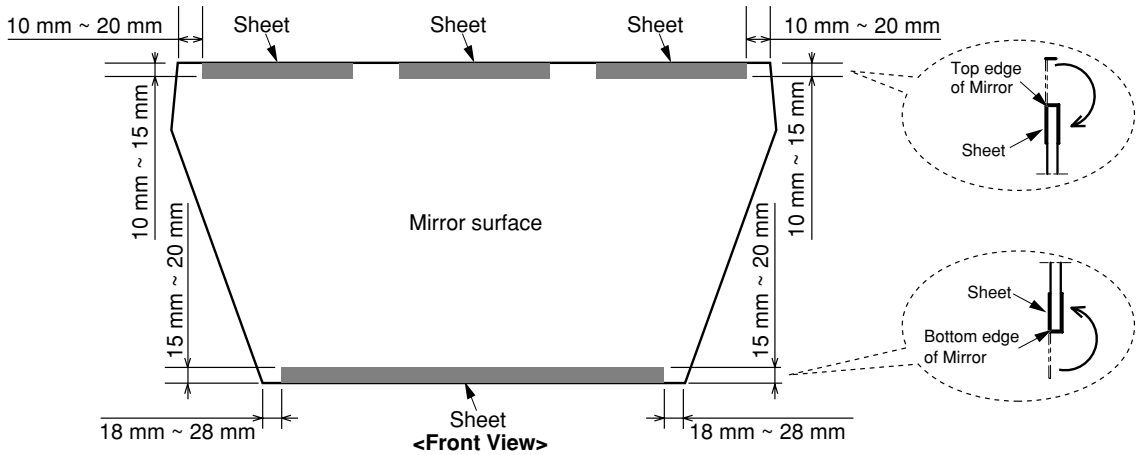


Fig. D4-7

2) Hold the sheet portions of the Mirror, and insert the Mirror from the top into the Back Cover slots carefully. When handling the Mirror, do not touch the Mirror surface.
3) Install the 3 Mirror Holder H and the 2 Mirror Holder V on the Mirror and tighten the 15 Screws (401).

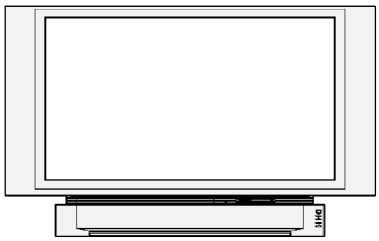
ORDER NO. MKE0307850C1

B2

Service Manual

Multi Media Display

PT-50LC13



PbF
Solder Lead free

SPECIFICATIONS

ITEM	SPECIFICATION
LCD panels	0.9" Poly silicon TFT LCD Panel X 3 RGB shutter method, using Translucent TN crystal panels
Drive method	Active Matrix 4:3 Aspect Ratio panels, TFT (Thin Film Transistor)
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Audio out	0.5 Vrms

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Speaker	2 Speakers 30 W [15 W + 15 W] (10 % THD)
Card Slot	SD Card slot: SD Card, Multi Media Card PC Card slot: Compact Flash, Smart Media, Memory Stic, xD Picture Card
Power Source	AC 120 V, 60 Hz
Power Consumption	Power ON: Approx. 220 W (When audio is at maximum) Power OFF: Approx. 0.4 W (When cooling fan is stopped)
Operating Condition	Temperature: 0 °C~40 °C (32 °F~104 °F) Humidity: 20 %~80 % (non-condensing)
Weight	37.6 kg (82.9 lbs.)
Dimensions (W x H x D)	1,416 mm x 897 mm x 389 mm (55-12/16 inch x 35-5/16 inch x 15-5/16 inch)
Solder	This model uses lead free solder (PbF).

Weight and dimensions shown are approximate.
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1. SAFETY PRECAUSIONS

1.1. GENERAL GUIDELINES

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC Plug before disassembling this unit.
3. It is advisable to use an isolation transformer in the AC supply before servicing.
4. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
5. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shield, and isolation R-C combinations etc. are properly installed.
6. After servicing, be sure to restore the wires, leads, insulation barriers, shields, etc.
7. After servicing, make the leakage current checks to prevent the customer from being exposed to shock hazards.

Caution:

Use a separate Isolation Transformer for this unit when servicing.

1.2. LEAKAGE CURRENT COLD CHECK

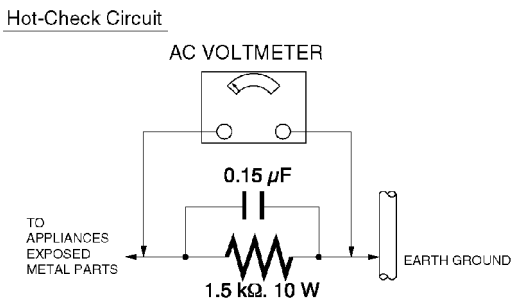
1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. For physically operated power switches, turn power on. Otherwise skip step 2.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the

receiver, such as screwheads, connectors, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 M Ω and 12 M Ω . When the exposed metal does not have a return path to the chassis, the reading must be infinity.

1.3. LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into the AC outlet.
   Do not use a isolation transformer for this check.
2. Connect a 1.5 k Ω , 10 W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.
3. Use an AC voltmeter, with 1 k Ω /V or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS.
   A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 mA. In case a measurement is outside of the limits specified, there is a possibility of shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

Figure 1



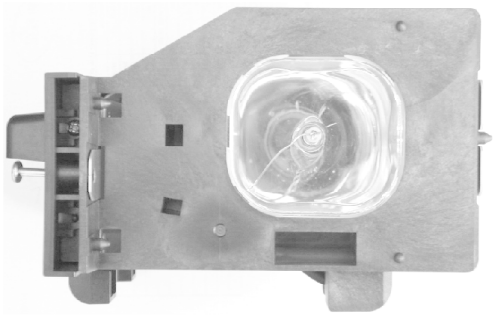
1.4. UV-PRECAUTION

1. Be sure to disconnect the AC Plug when replacing the lamp.
2. Since the lamp reaches a very high temperature during its

operation, wait until it has completely cooled off when replacing the Lamp Unit.

3. **The lamp emits small amounts of UV-Radiation.**
   Avoid direct-eye contact by covering the Lamp and wearing the UV cut protective glass.
4. **The high pressure lamp involves a risk of explosion.**

Figure 2



This product has a High Intensity Discharge (HID) lamp that contains a small amount of mercury. Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information please contact your local authorities, or the Electronics Industries Alliance: <http://www.eiae.org.>

2. PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the**

assembly.

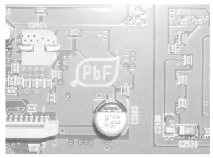
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION :
   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

3. ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)

Printed case 1



Printed case 2

CAUTION:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 50 °F - 70 °F (30 °C - 40 °C) higher.
  Please use a soldering iron with temperature control and adjust it to 700 °F±20 °F (370 °C± 10 °C).
  In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100 °F/600 °C).
- All products with the printed circuit board with PbF stamp or printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn96.5 Ag3.0 Cu0.5.

4. SERVICE NOTES

5. DISASSEMBLY/ASSEMBLY PROCEDURES

5.1. CABINET SECTION

6. ADJUSTMENT PROCEDURES

7. TROUBLESHOOTING HINTS FOR BLOCK LEVEL REPAIR

8. BLOCK DIAGRAMS

9. SCHEMATIC DIAGRAMS

9.1. SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

9.2. INTERCONNECTION SCHEMATIC DIAGRAM

9.3. FRONT JACK SCHEMATIC DIAGRAM

9.4. NETWORK / THERMISTOR 1 / THERMISTOR 2 / OPERATION / COVER SWITCH SCHEMATIC DIAGRAMS

9.5. AUDIO AMP SCHEMATIC DIAGRAM

9.6. TUNER SCHEMATIC DIAGRAM

9.7. VOLTAGE CHART

10. CIRCUIT BOARD LAYOUT

10.1. FRONT JACK C.B.A. / OPERATION C.B.A. / NETWORK C.B.A.

10.2. AUDIO AMP C.B.A. / THERMISTOR 1 C.B.A. / THERMISTOR 2 C.B.A. / COVER SWITCH C.B.A.

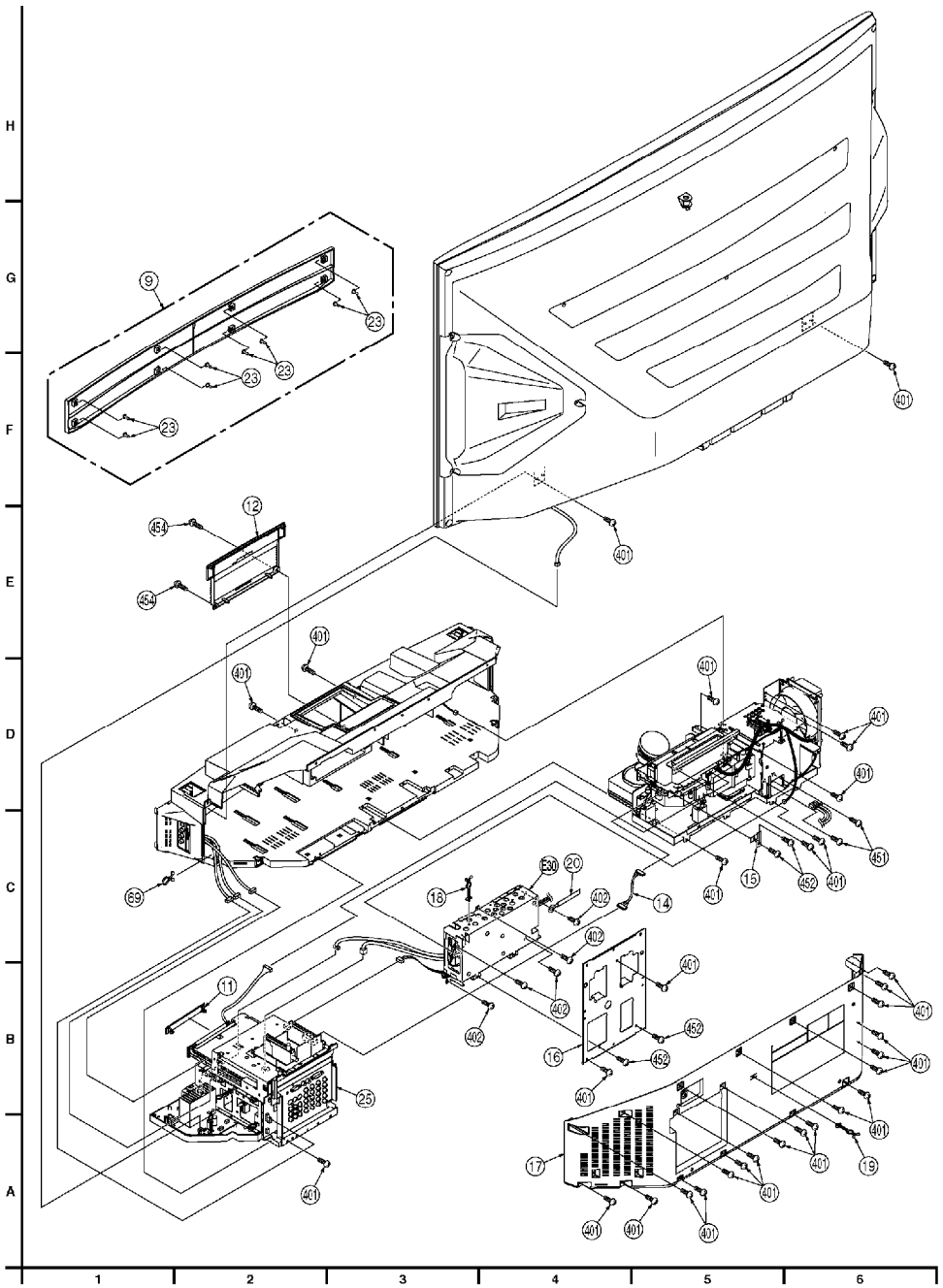
10.3. TUNER C.B.A.

11. EXPLODED VIEWS

11.1. MAIN PARTS SECTION

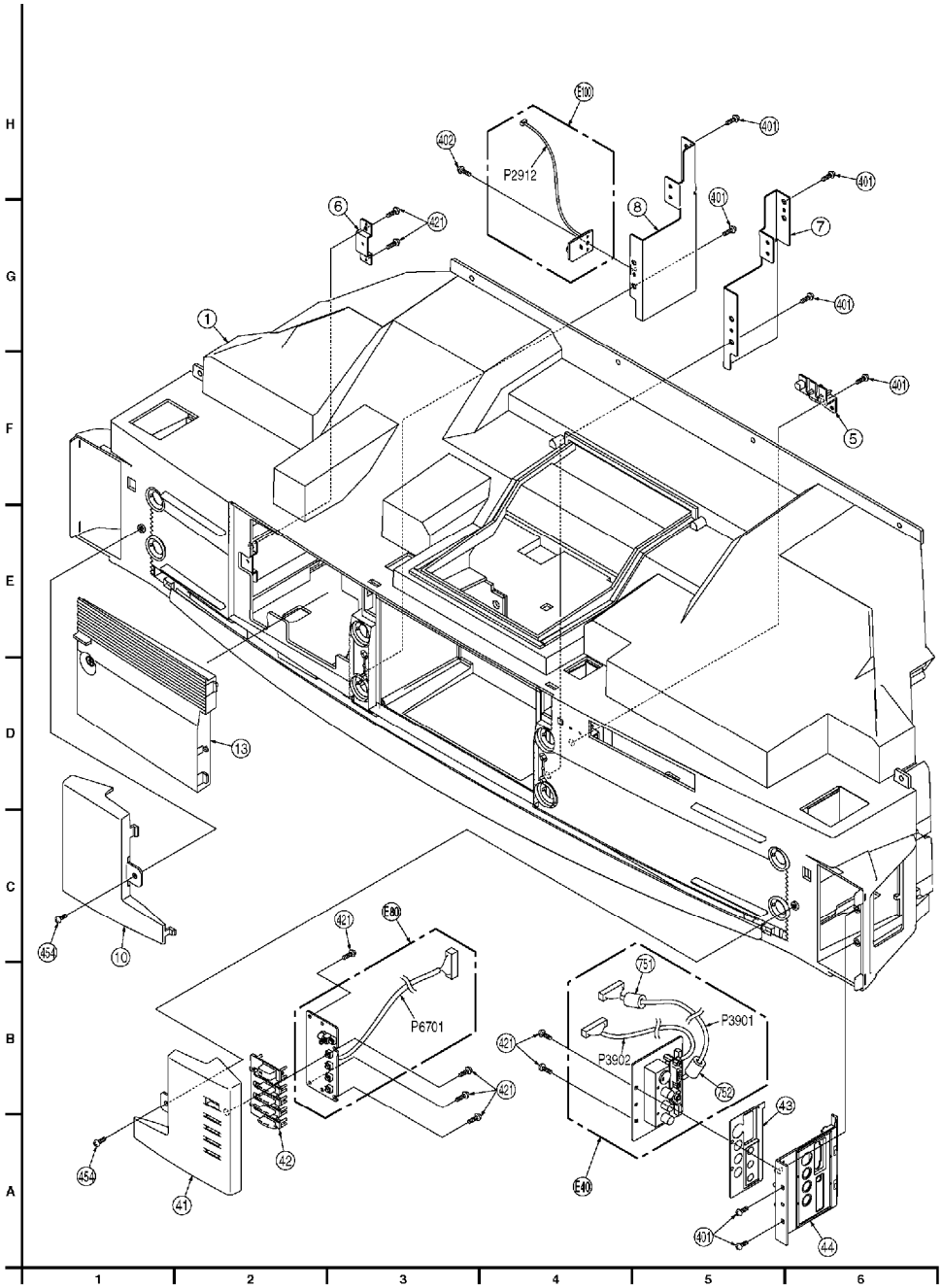
❶ MAIN PARTS SECTION

Note: Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.



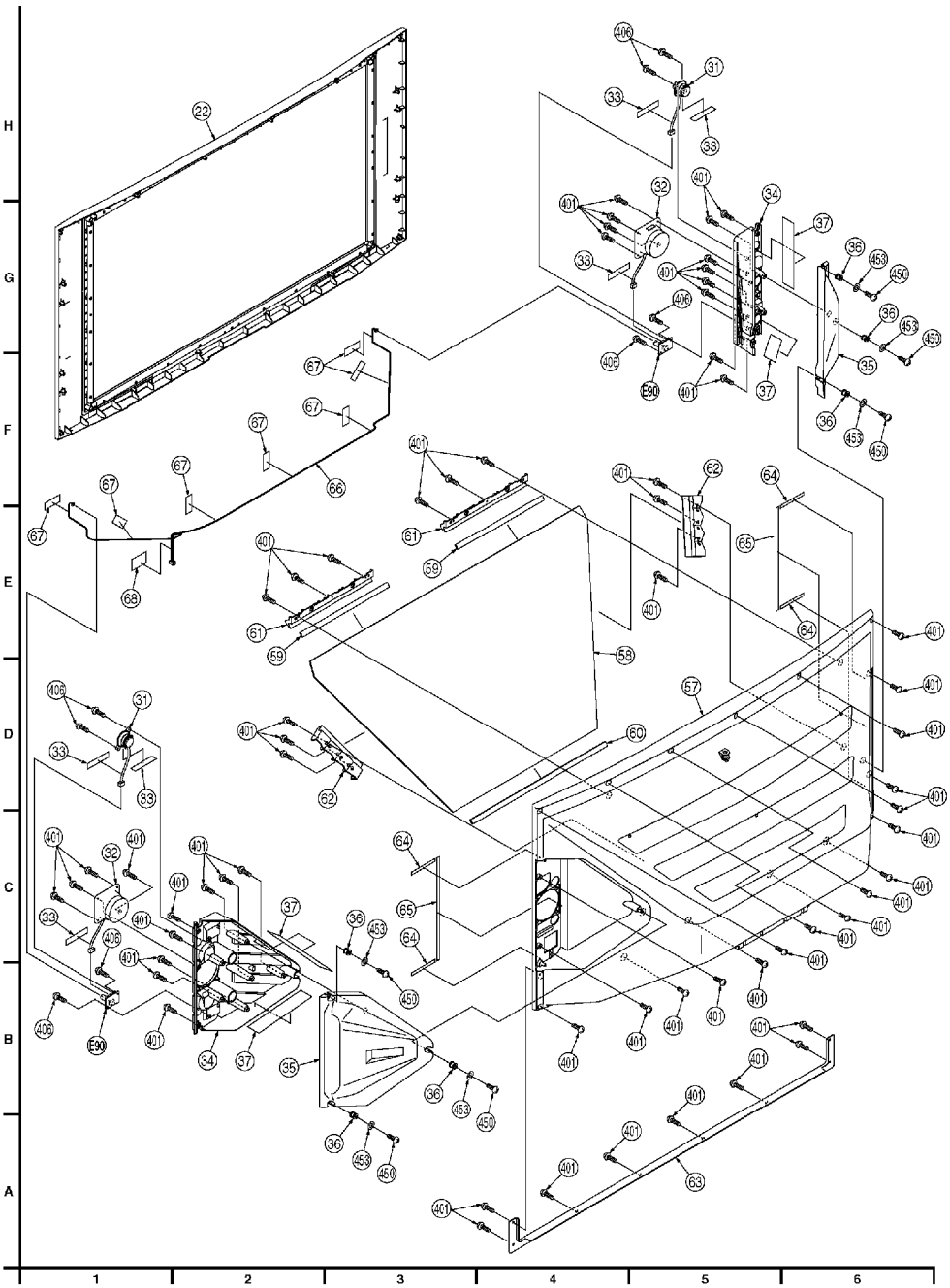
11.2. FRONT AND BASE SECTION

❷ FRONT AND BASE SECTION



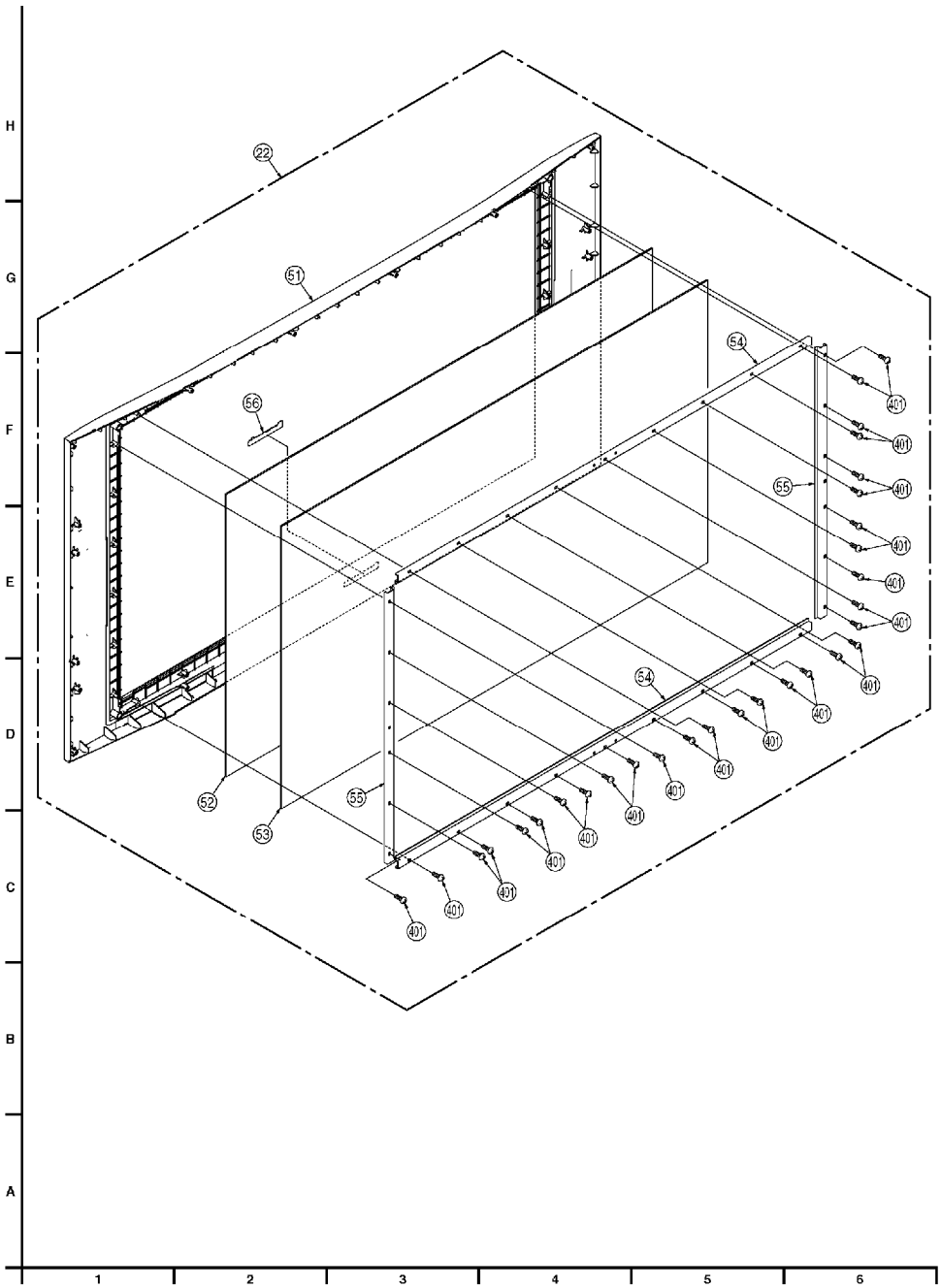
11.3. DISPLAY SECTION

❸ DISPLAY SECTION



11.4. SCREEN SECTION

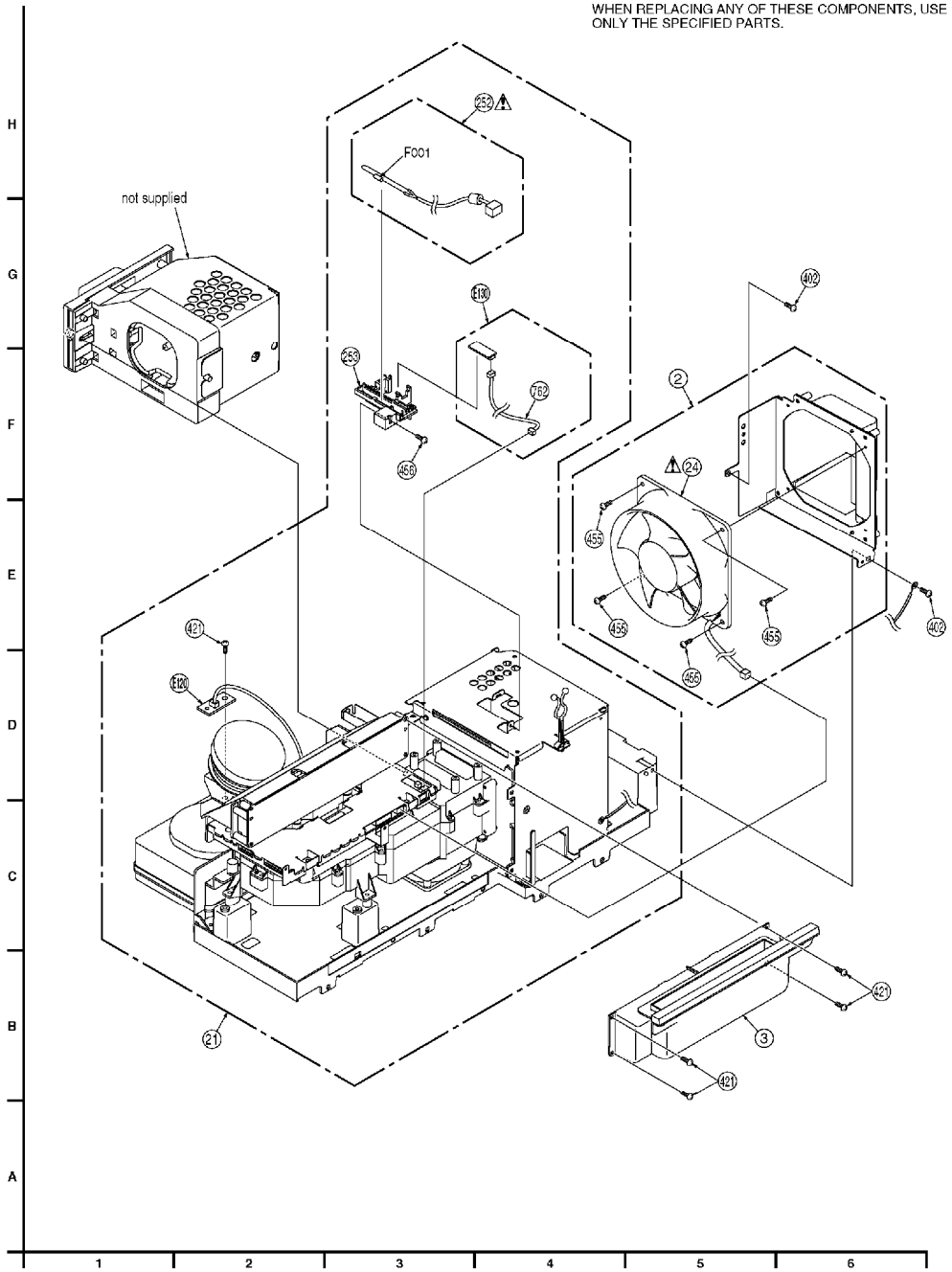
❹ SCREEN SECTION



11.5. PROJECTION SECTION

❺ PROJECTION SECTION

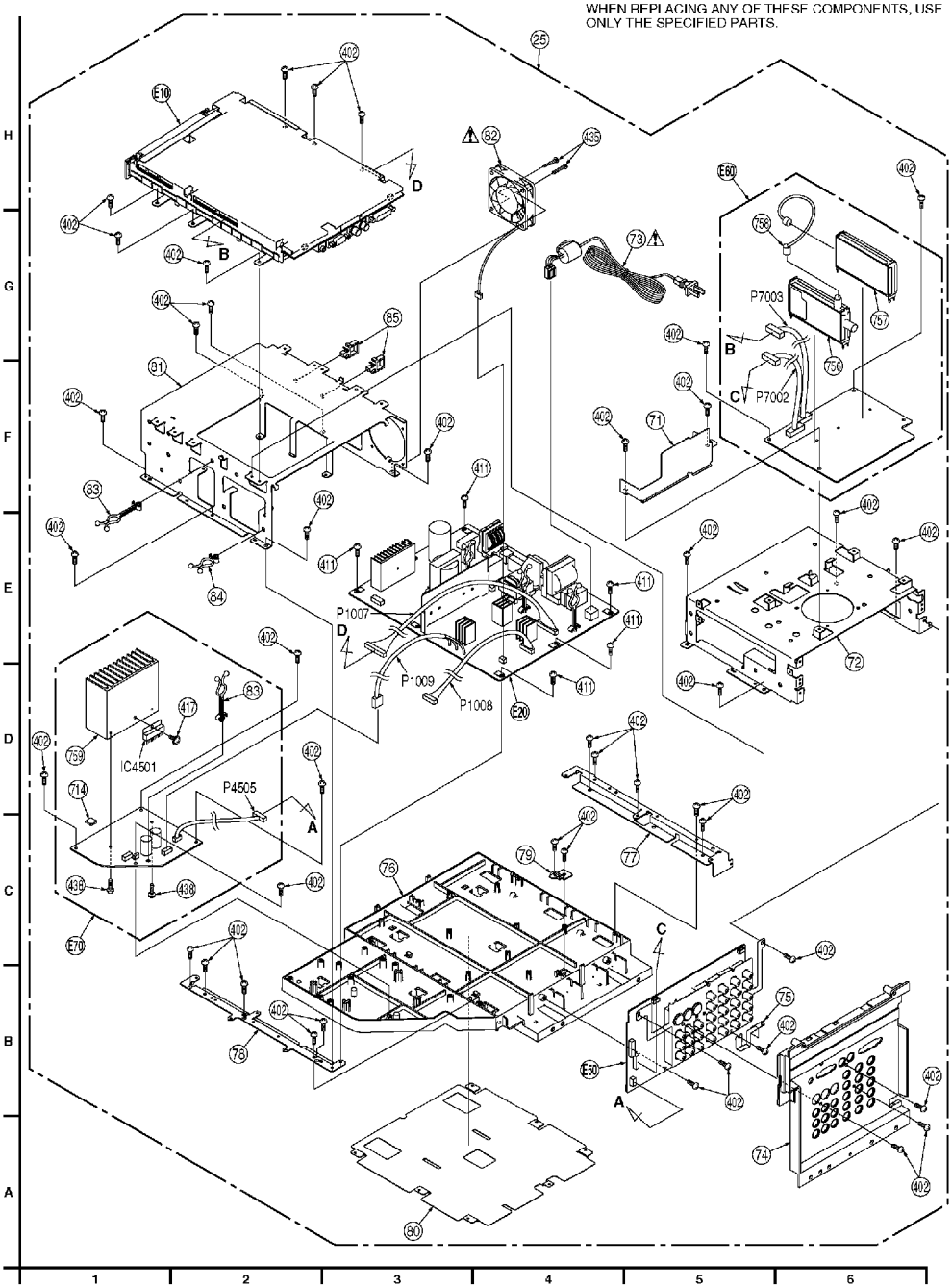
IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



11.6. TV AND TUNER SECTION

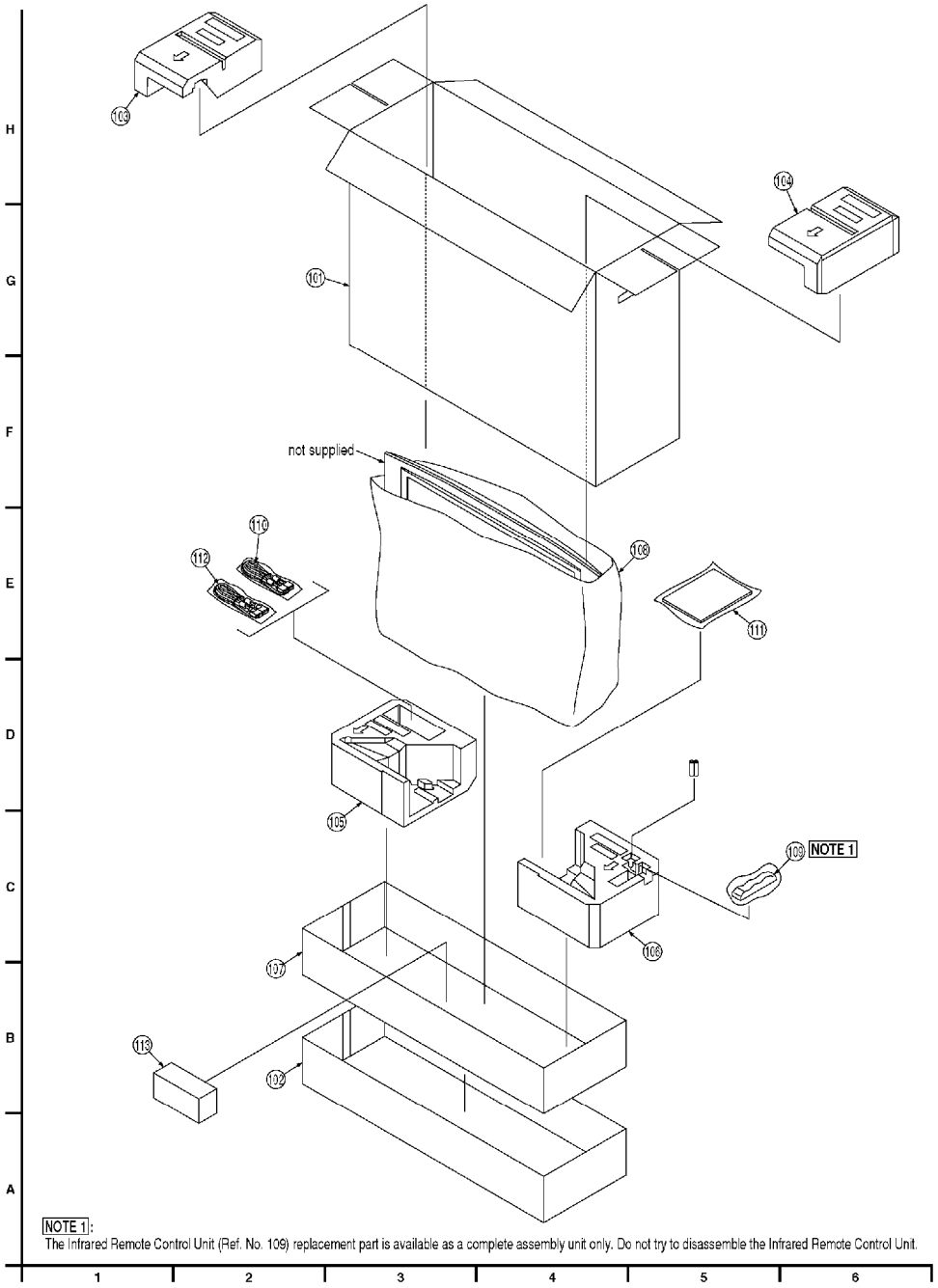
❻ TV AND TUNER SECTION

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



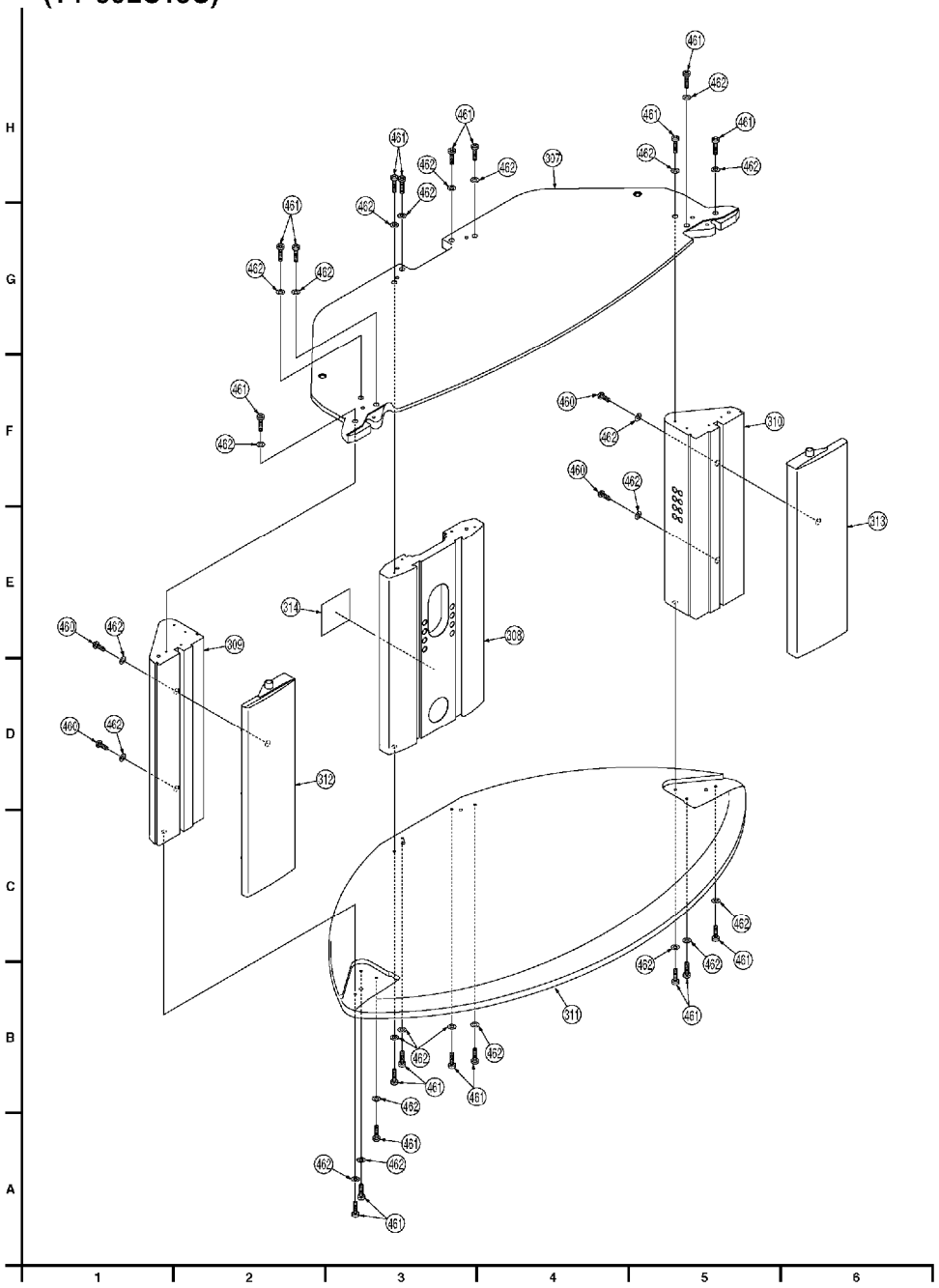
11.7. PACKING PARTS AND ACCESSORIES SECTION

❼ PACKING PARTS AND ACCESSORIES SECTION



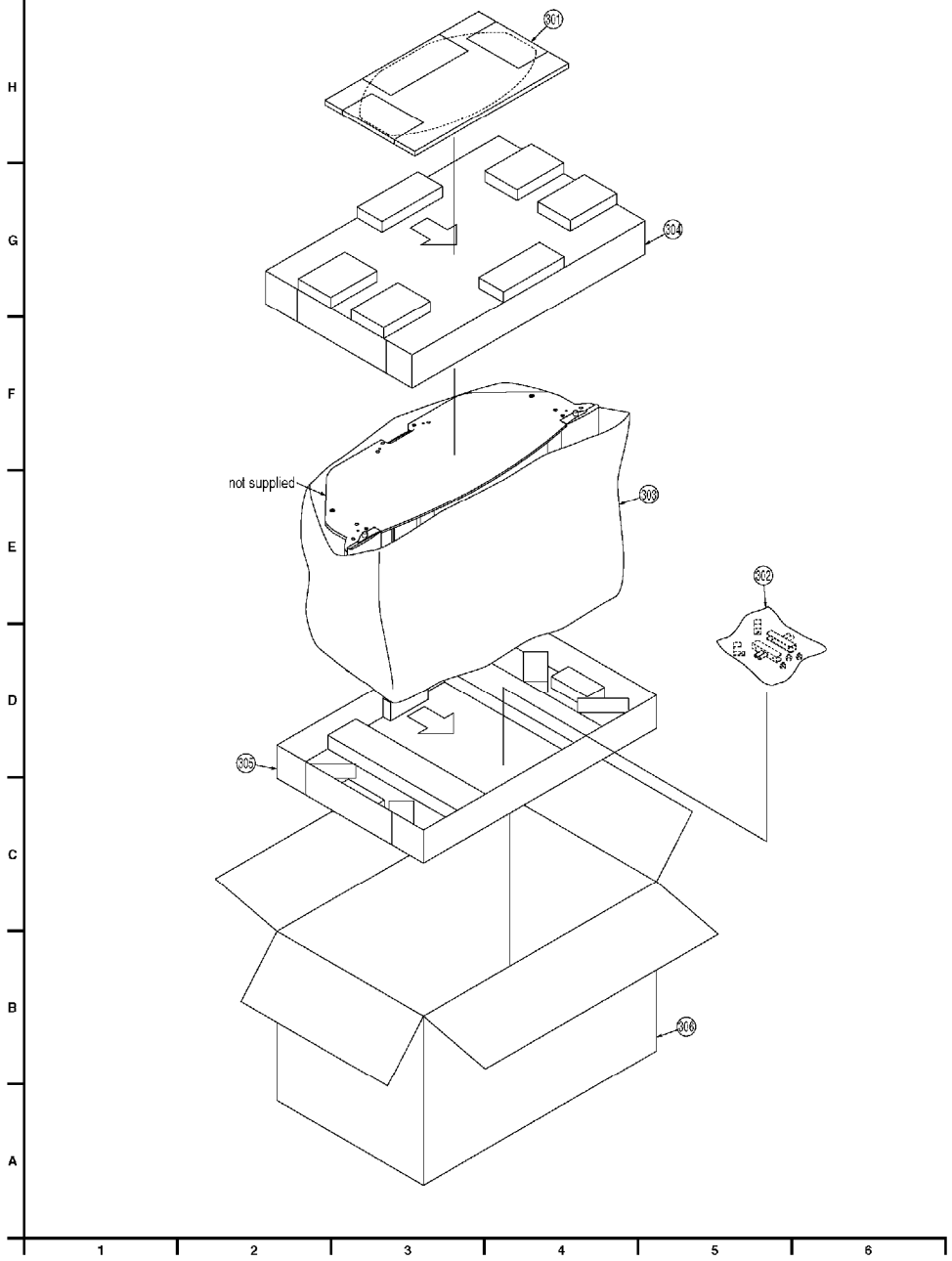
11.8. OPTIONAL ACCESSORY SECTION (1)

8 TV STAND SECTION (1)
(TY-50LC13C)



11.9. OPTIONAL ACCESSORY SECTION (2)

❾ TV STAND SECTION (2)
(TY-50LC13C)



12. REPLACEMENT PARTS LIST

BEFORE REPLACING PARTS, READ THE FOLLOWING:

12.1. REPLACEMENT NOTES

12.1.1. General Notes

1. Use only original replacement parts:

To maintain original function and reliability of repaired units, use

only original replacement parts which are listed with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. **SPECIAL NOTE**
   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.
4. **Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.**
5. **Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.**
6. **Definition of Parts supplier:**
   A. Parts with mark "MKA" in the Remarks column are supplied from MKA.
   B. Parts without mark in the Remarks column are supplied from MKE.
7. **Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.**
8. **Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.**

12.1.2. Main Parts Replacement Notes

1. **Section No. of parts shown in Exploded Views are indicated in the Remarks column.**
2. **Abbreviation**
   RTL: Retention Time Limited
   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be

available.

3. **After replacing the Projection Unit (Ref. No. 21), be sure to perform "ADJUSTMENT of the Projection Unit." Refer to "WHEN REINSTALLING THE PROJECTION UNIT INTO THE UNIT AT THE USER'S LOCATION" in SERVICE NOTES.**
4. **The Infrared Remote Control Unit (Ref. No. 109) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit.**

12.1.3. Electrical Replacement Notes

1. **Unless otherwise specified;**
   All resistors are in Ω, K = 1,000 Ω, M = 1,000 kΩ.
2. **Abbreviation**

RTL:
Retention Time Limited
This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

NR:
Non Repairable Board Ass'y

MGF CHIP:
Metal Glaze Film Chip

C CHIP:
Ceramic Chip

COMPLX CMP:
Complex Component

W FLMPRF:
Wirewound Flameproof

C.B.A.:
Circuit Board Assembly

P.C.B.:
Printed Circuit Board

E.S.D.:
Electrostatically Sensitive Devices

3. When replacing 0 Ω resistor, a wire can be substituted for it.

4. Since MAIN TUNER,UHF/VHF and SUB TUNER,UHF/VHF (Ref. No. 756 and 757) have already been pre-adjusted at the factory, do not try to adjust them. The replacement parts for them are available as a complete assembly unit only.

12.2. MECHANICAL REPLACEMENT PARTS LIST

Definition of Parts supplier:

1. Parts with mark "MKA" in the Remarks column are supplied from MKA.

2. Parts without mark in the Remarks column are supplied from MKE.

MECHANICAL REPLACEMENT PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	LSYK1216	BASE BODY UNIT	2 MKA
2	LSXY0507	FAN 3 UNIT	5 MKA
3	LSXA0531	TOP DUCT 3 UNIT	5 MKA
5	LSGL0390	INFRARED PIECE	2 MKA
6	LSMA0688	LAMP COVER FIX PLATE,STEEL	2 MKA
7	LSMA0697	DISPLAY SUPPORT PLATE R,STEEL	2 MKA
8	LSMA0696	DISPLAY SUPPORT PLATE L,STEEL	2 MKA
9	LSYK1210	FRONT COVER UNIT	1 MKA
10	LSKG0036	FRONT SIDE COVER L	2 MKA
11	LSYY0031	SD DOOR UNIT	1 MKA
12	LSKF0528	OPTICAL COVER	1 MKA
13	LSYK1220	LAMP COVER UNIT	2 MKA
14	LSJA0467	CONNECTOR CABLE W/PLUG	1 MKA
15	LSSC0648	GROUNDING PLATE A,STEEL	1 MKA
16	LSMA0686	REAR SUPPORT PLATE,STEEL	1 MKA
17	LSGV0057	REAR COVER	1 MKA
18	STL450-3-1BK	CLAMPER	1 MKA
19	SLCSE2-500-3	CLAMPER	1 MKA
20	LSXA0478	CLAMPER UNIT	1 MKA
21	LSXA0528-HBS	PROJECTION UNIT	5 RTL
22	LSYK1214	SCREEN UNIT	3,4 MKA
23	TMM14414	STRIKE	1 MKA
24	FBL12G12L2CS	FAN 3	5 ⚠ MKA
25	LSXY0503	TV/TUNER UNIT	1,6 RTL MKA
31	EASG5PH519A2	TWEETER	3 MKA
32	EASG10P579A2	WOOFER	3 MKA
33	LSMF0290	SPACER	3 MKA
34	LSGQ0088	SPEAKER BOX FRONT	3 MKA
35	LSGQ0089	SPEAKER BOX REAR	3 MKA
36	TMMJ058	SPEAKER RUBBER	3 MKA
37	LSMF0278	ACOUSTIC CUSHION	3 MKA
41	LSKG0037	FRONT SIDE COVER R	2 MKA
42	LSXU0012	OPERATION BUTTON UNIT	2 MKA
43	LSSC0645	FRONT JACK GROUNDING PLATE,STEEL	2

Ref. No.	Part No.	Part Name & Description	Remarks
44	LSJH0066	SIDE JACK HOLDER	2
51	LSGY0165	ESCUTCHEON	4 MKA
52	LSGP0365	LENTICULAR SCREEN	4 MKA
53	LSGP0366	FRESNEL LENS	4 MKA
54	LSXA0548	SCREEN PLATE H UNIT,STEEL	4 MKA
55	LSXA0549	SCREEN PLATE V UNIT,STEEL	4 MKA
56	TBM2AA0071	PANASONIC BADGE	4 MKA
57	LSGV0056	BACK COVER	3 MKA
58	LSDL0243	MIRROR	3 MKA
59	LSMF0280	SPACER	3 MKA
60	LSMF0281	SPACER	3 MKA
61	LSGQ0092	MIRROR HOLDER H	3 MKA
62	LSYF0541	MIRROR HOLDER V UNIT	3 MKA
63	LSMA0700	BACK COVER PLATE,STEEL	3 MKA
64	LSMF0288	SPACER	3 MKA
65	LSMF0289	SPACER	3 MKA
66	LSJA0474	CONENCTOR CABLE W/PLUG,	3 MKA
67	LSMF0291	SPACER	3 MKA
68	LSMF0292	SPACER	3 MKA
69	TMM77409	CLAMPER	1 MKA
71	LSSC0669	TUNER SHIELD PLATE,STEEL	6 MKA
72	LSMA0691	TUNER PCB FRAME	6
73	LSJA0456-FE	AC CORD W/PLUG	6 ⚠
74	LSJH0065	REAR JACK HOLDER	6
75	LSSC0672	GROUNDING PLATE C,STEEL	6
76	LSMP0440	PCB FRAME	6
77	LSMA0693	PCB FRAME PLATE LEFT,STEEL	6
78	LSMA0694	PCB FRAME PLATE RIGHT,STEEL	6
79	LSMA0695	PCB FRAME PLATE CENTER,STEEL	6
80	LSSC0646	BOTTOM SHIELD PLATE	6
81	LSMA0690	MAIN PCB FRAME	6
82	L6FAKCDH0007	FAN 4	6 ⚠
83	TMM5439-1	CLAMPER	6
84	TMM7464-1	CLAMPER	6
85	LSGP0369	CLAMPER	6
101	LSPG1547	CARTON BOX	7 MKA
102	LSPG1548	CARTON BOX BOTTOM	7 MKA
103	LSPN0339	CUSHION TOP L,STYROFOAM	7 MKA
104	LSPN0340	CUSHION TOP R,STYROFOAM	7 MKA
105	LSPN0341	CUSHION BOTTOM L,STYROFOAM	7 MKA
106	LSPN0342	CUSHION BOTTOM R,STYROFOAM	7 MKA
107	LSPG1549	INSIDE CARTON	7 MKA
108	LSPF0111	BAG,POLYETHYLENE	7 MKA
109	EUR7603ZB0	INFRARED REMOTE CONTROL UNIT	7 MKA
110	LSJA0239	RGB CABLE W/PLUG	7 MKA
111	LSQF0738	FAN BAG	7 MKA
111	LSQF0747	FAN BAG	7 MKA
112	K1HA24DA0003	DVI CABLE W/PLUG	7 MKA
113	LSPN0430	FRONT CUSHION	7 MKA
252	LSJA0464-FE	THERMAL FUSE UNIT	5 ⚠
253	LSMP0420	SENSOR HOLDER	5
401	XTV4+16A	TAPPING SCREW,STEEL	1,2,3,4 MKA
402	XTV3+8J	TAPPING SCREW,STEEL	1,2,5,6 MKA

Ref. No.	Part No.	Part Name & Description	Remarks
406	XTV3+10J	TAPPING SCREW,STEEL	3 MKA
411	XYE3+FF8	SCREW W/WASHER,STEEL	6
417	XYN3+K10	SCREW W/WASHER,STEEL	6
421	XTV3+8G	TAPPING SCREW,STEEL	2,5 MKA
435	XTV3+20J	TAPPING SCREW,STEEL	6
438	XTW3+10J	TAPPING SCREW,STEEL	6
450	XTV4+30A	TAPPING SCREW,STEEL	3 MKA
451	XTW3+8Q	TAPPING SCREW,STEEL	1 MKA
452	XTV3+8F	TAPPING SCREW,STEEL	1 MKA
453	XWG5F16	WASHER,STEEL	3 MKA
454	XTV4+16AFZ	TAPPING SCREW,STEEL	1,2 MKA
455	XTV3+12J	SCREW,STEEL	5 MKA
456	XTV3+6F	TAPPING SCREW,STEEL	5
714	VMTS0035	CUSHION,RUBBER	6
751	J0KA00000044	FERRITE CORE	2
752	LSLQ0307	FERRITE CORE	2
756	ENG36714GF	MAIN TUNER,UHF/VHF NR	6
757	ENG36712GF	SUB TUNER,UHF/VHF NR	6
758	LSJA0468	CONNECTOR CABLE W/PLUG,5V	6
759	LSSC0634	HEAT SINK	6
762	LSJA0478	CONNECTOR CABLE W/PLUG	5
E10	LSXY0508	MAIN C.B.A.	6 RTL
E20	LSEP3088A	POWER C.B.A.	6 RTL
E30	LSEB3087A	BALLAST C.B.A. NR	1
E40	LSEP3094A	FRONT JACK C.B.A.	2 RTL
E50	LSXY0509	REAR JACK C.B.A.	6 RTL
E60	LSEP3095A	TUNER C.B.A.	6 RTL
E70	LSEP3092A	AUDIO AMP C.B.A.	6 RTL
E80	LSEP3096A	OPERATION C.B.A.	2 RTL
E90	LSEP3097A	NETWORK C.B.A.	3 RTL
E100	LSEP3098A	COVER SWITCH C.B.A.	2 RTL
E120	LSEP3099A1	THERMISTOR 1 C.B.A.	5 RTL
E130	LSEP3100A	THERMISTOR 2 C.B.A.	5 RTL

12.3. OPTIONAL ACCESSORY REPLACEMENT PARTS LIST

Definition of Parts supplier:

1. Parts with mark "MKA" in the Remarks column are supplied from MKA.

2. Parts without mark in the Remarks column are supplied from MKE.

12.3.1. TV STAND (TY-50LC13C)

Ref. No.	Part No.	Part Name & Description	Remarks
301	LSYP0096	SHELF PANEL UNIT	9 MKA
302	LSYC0252	PARTS UNIT	9 MKA
303	LSPF0054	BAG,POLYETHYLENE	9 MKA
304	LSYY0033	TOP PAD	9 MKA
305	LSYY0034	BOTTOM PAD	9 MKA
306	LSPG1573	PACKING CASE,PAPER	9 MKA
307	LSYP0095	TOP PANEL UNIT	8 MKA
308	LSYP0092	REAR POLE UNIT	8 MKA
309	LSYP0093	SIDE POLE L UNIT	8 MKA
310	LSYP0094	SIDE POLE R UNIT	8 MKA
311	LSKU0019	BASE PANEL	8 MKA
312	LSGP0370	SIDE PANEL L	8 MKA
313	LSGP0371	SIDE PANEL R	8 MKA
314	LSQL1525	CAUTION LABEL	8 MKA
460	XTV4+25AK	TAPPING SCREW,STEEL	8 MKA
461	XTV4+45AK	SCREW,STEEL	8 MKA
462	XWE4K	WASHER,STEEL	8 MKA

12.4. ELECTRICAL REPLACEMENT PARTS LIST

Definition of Parts supplier:

1. All parts are supplied from MKE.

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	LSXY0508	MAIN C.B.A.	E.S.D. RTL
E20	LSEP3088A	POWER C.B.A.	RTL
E30	LSEB3087A	BALLAST C.B.A. NR	
E40	LSEP3094A	FRONT JACK C.B.A.	RTL
E50	LSXY0509	REAR JACK C.B.A.	RTL
E60	LSEP3095A	TUNER C.B.A.	E.S.D. RTL
E70	LSEP3092A	AUDIO AMP C.B.A.	RTL
E80	LSEP3096A	OPERATION C.B.A.	RTL
E90	LSEP3097A	NETWORK C.B.A.	RTL
E100	LSEP3098A	COVER SWITCH C.B.A.	RTL
E120	LSEP3099A1	THERMISTOR 1 C.B.A.	RTL
E130	LSEP3100A	THERMISTOR 2 C.B.A.	RTL

12.4.1. FRONT JACK C.B.A.

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D3901	B0BD6R200002	DIODE ZENER 6.2V	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R3901	ERJ6ENF75R0V	MGF CHIP 1/10W 75	
R3902	ERJ6ENF75R0V	MGF CHIP 1/10W 75	
R3903	ERJ6ENF75R0V	MGF CHIP 1/10W 75	
R3904	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3905	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3906	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3907	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3908	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3911	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3912	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3913	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3914	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3915	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3916	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3917	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3918	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4801	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4802	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4803	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4804	ERJ6GEYJ101V	MGF CHIP 1/10W 100	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P3901	LSJA0469	CONNECTOR CABLE W/PLUG,5V	
P3902	LSJA0470	CONNECTOR CABLE W/PLUG,5V	

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK3901	K1FB115A0015	D-SUB MINI JACK SOCKET	
JK4801	K1U412A00008	S-JACK SOCKET	
JK4802	K2HC103A0017	EARPHONE JACK SOCKET	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
751	J0KA00000044	FERRITE CORE	
752	LSLQ0307	FERRITE CORE	

12.4.2. TUNER C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC6501	D750066-330	IC, CMOS STANDARD LOGIC	E.S.D.
IC7501	AN5832SA-E1V	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q7002	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q7002	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q7002	B1ADCF000075	TRANSISTOR SI PNP CHIP	
Q7101	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q7101	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q7101	B1ADCF000075	TRANSISTOR SI PNP CHIP	
Q7501	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q7501	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q7501	B1ADCF000075	TRANSISTOR SI PNP CHIP	
Q7502	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q7502	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q7502	B1ADCF000075	TRANSISTOR SI PNP CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R6502	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6507	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6511	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6516	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6518	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6519	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6520	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6521	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6522	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6523	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6524	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6525	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6526	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6527	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6528	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6529	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6530	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6531	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6532	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6534	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6536	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R7001	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7002	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7007	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7008	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R7009	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R7010	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7011	EVMEGSA00B23	VARIABLE 2K	
R7012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7101	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7102	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7103	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7104	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7105	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7106	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7107	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	

Ref. No.	Part No.	Part Name & Description	Remarks
R7501	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R7502	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R7503	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R7504	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R7505	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R7506	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R7508	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R7509	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R7510	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R7511	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R7512	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R7513	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R7514	EVNCYAA03B14	VARIABLE 10K	
R7516	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R7517	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C6501	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C6502	ECJ2VC1H101J	C CHIP 50V 100PF	
C6503	ECEA0JKA101I	ELECTROLYTIC 6.3V 100UF	
C6504	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C6505	ECJ2VC1H101J	C CHIP 50V 100PF	
C7001	ECJ2VB1H222K	C CHIP 50V 0.0022UF	
C7002	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C7003	ECJ2VB1H222K	C CHIP 50V 0.0022UF	
C7004	ECJ2VC1H330J	C CHIP 50V 33PF	
C7007	ECJ2VB1H102K	C CHIP 50V 1000PF	
C7008	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C7009	ECEA1CKA100I	ELECTROLYTIC 16V 10UF	
C7101	ECJ2VB1H222K	C CHIP 50V 0.0022UF	
C7102	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C7103	ECJ2VB1H222K	C CHIP 50V 0.0022UF	
C7107	ECJ2VB1H102K	C CHIP 50V 1000PF	
C7501	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C7502	ECEA1HKA2R2I	ELECTROLYTIC 50V 2.2UF	
C7503	ECEA1CKA100I	ELECTROLYTIC 16V 10UF	
C7504	ECEA1HKAR33I	ELECTROLYTIC 50V 0.33UF	
C7505	ECEA1HKA3R3I	ELECTROLYTIC 50V 3.3UF	
C7507	ECJ2VB1C104K	C CHIP 16V 0.1UF	
C7508	ECJ2VB1E223K	C CHIP 25V 0.022UF	
C7509	ECEA0JKA101I	ELECTROLYTIC 6.3V 100UF	
C7510	ECEA1HKA2R2I	ELECTROLYTIC 50V 2.2UF	
C7513	ECEA1CKA100I	ELECTROLYTIC 16V 10UF	
C7514	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C7515	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C7516	ECJ2VB1H333K	C CHIP 50V 0.033UF	
C7517	ECJ2VB1C224K	C CHIP 16V 0.22UF	
C7518	ECEA1HKA2R2I	ELECTROLYTIC 50V 2.2UF	
C7519	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C7520	ECEA1HKAR33I	ELECTROLYTIC 50V 0.33UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L7001	VLQSAB7D100K	COIL 10UH	
L7101	VLQSAB7D100K	COIL 10UH	
L7501	ELESN101KA	COIL 100UH	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X6501	EFOEC4004T4	CRYSTAL OSCILLATOR	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P7002	LSJA0465	CONNECTOR CABLE W/PLUG,	
P7003	LSJA0466	CONNECTOR CABLE W/PLUG,33V	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
756	ENG36714GF	MAIN TUNER,UHF/VHF NR	
757	ENG36712GF	SUB TUNER,UHF/VHF NR	
758	LSJA0468	CONNECTOR CABLE W/PLUG,5V	

12.4.3. AUDIO AMP C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC4501	C1AA00000660	IC, LINEAR	
IC4503	C0CAAKE00013	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q4501	2SD0601AHL	TRANSISTOR SI NPN CHIP	
Q4501	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4501	B1ABCF000106	TRANSISTOR SI NPN CHIP	
Q4504	2SD0601AHL	TRANSISTOR SI NPN CHIP	
Q4504	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4504	B1ABCF000106	TRANSISTOR SI NPN CHIP	
Q4505	2SD0601AHL	TRANSISTOR SI NPN CHIP	
Q4505	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4505	B1ABCF000106	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4501	MAZ40510MF	DIODE ZENER 5.1V	
D4501	HZS5C2TD	DIODE ZENER 5.1V	
D4501	HZS5C3TD	DIODE ZENER 5.1V	
D4504	MA2C16700E	DIODE SI	
D4504	B0AAEL000001	DIODE SI	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4501	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4502	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4503	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4504	ERX1SJ4R7P	METAL FILM 1W 4.7	
R4505	ERX1SJ4R7P	METAL FILM 1W 4.7	
R4506	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4507	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4508	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4509	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4510	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R4511	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R4512	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R4513	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R4525	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4526	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4527	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4543	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4544	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4545	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4546	ERJ6GEY0R00V	MGF CHIP 1/10W 0	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4501	ECA1VM102B	ELECTROLYTIC 35V 1000UF	
C4502	ECA1VM102B	ELECTROLYTIC 35V 1000UF	
C4503	ECEA1CKA100B	ELECTROLYTIC 16V 10UF	
C4504	ECQB1H104KF3	POLYESTER 50V 0.1UF	
C4505	ECQB1H104KF3	POLYESTER 50V 0.1UF	
C4506	ECJ2VB1E473K	C CHIP 25V 0.047UF	
C4507	ECJ2VB1E473K	C CHIP 25V 0.047UF	
C4508	ECJ2VB1E683K	C CHIP 25V 0.068UF	
C4509	ECJ2VB1E683K	C CHIP 25V 0.068UF	
C4510	ECEA1HKN010B	ELECTROLYTIC 50V 1UF	
C4511	ECEA1HKN010B	ELECTROLYTIC 50V 1UF	
C4512	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C4513	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C4514	ECA1HM100B	ELECTROLYTIC 50V 10	
C4516	ECEA1CKA100B	ELECTROLYTIC 16V 10UF	
C4526	ECEA1CKN100B	ELECTROLYTIC 16V 10UF	
C4527	ECEA1CKN100B	ELECTROLYTIC 16V 10UF	
C4528	ECEA1EKA4R7B	ELECTROLYTIC 25V 4.7UF	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P4501	K1KA03A00008	CONNECTOR 3P	
P4503	K1KA04A00192	CONNECTOR 2P	
P4505	LSJA0473	CONNECTOR CABLE W/PLUG,5V	

RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL4501	K6B2AGA00038	RELAY	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
83	TMM5439-1	CLAMPER	
417	XYN3+K10	SCREW W/WASHER,STEEL	
438	XTW3+10J	TAPPING SCREW,STEEL	
714	VMTS0035	CUSHION,RUBBER	
759	LSSC0634	HEAT SINK	

12.4.4. OPERATION C.B.A.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q6701	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q6701	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q6701	B1ADCF000075	TRANSISTOR SI PNP CHIP	
Q6702	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q6702	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q6702	B1ADCF000075	TRANSISTOR SI PNP CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D6701	B3AGA0000072	LIGHT EMITTING DIODE GREEN	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R6702	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6703	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6704	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R6705	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6706	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6707	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P6701	LSJA0472	CONNECTOR CABLE W/PLUG,5V	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6701	EVQ11G05R	SWITCH PUSH	
SW6702	EVQ11G05R	SWITCH PUSH	
SW6703	EVQ11G05R	SWITCH PUSH	
SW6704	EVQ11G05R	SWITCH PUSH	
SW6705	EVQ11G05R	SWITCH PUSH	

12.4.5. NETWORK C.B.A.

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4551	F2J1J3R3A003	ELECTROLYTIC 63V 3.3UF	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P4551	K1KA02A00229	CONNECTOR 2P	
P4552	K1KA02A00188	CONNECTOR 2P	
P4553	K1KA02A00008	CONNECTOR 2P	

12.4.6. COVER SWITCH C.B.A.

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2912	LSJA0476	CONNECTOR CABLE W/PLUG	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW2911	K0L1BA000070	SWITCH PUSH	

12.4.7. THERMISTOR 1 C.B.A.

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R2811	D4CA35030002	THERMISTER	⚠

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2811	K1KA02A00096	CONNECTOR 2P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
761	LSJA0477	CONNECTOR CABLE W/PLUG,	

12.4.8. THERMISTOR 2 C.B.A.

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R2821	D4CE31330001	THERMISTOR	⚠

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2821	K1KA02B00051	CONNECTOR 2P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
762	LSJA0478	CONNECTOR CABLE W/PLUG,	

13. SCHEMATIC DIAGRAMS FOR PRINTING WITH LETTER SIZE

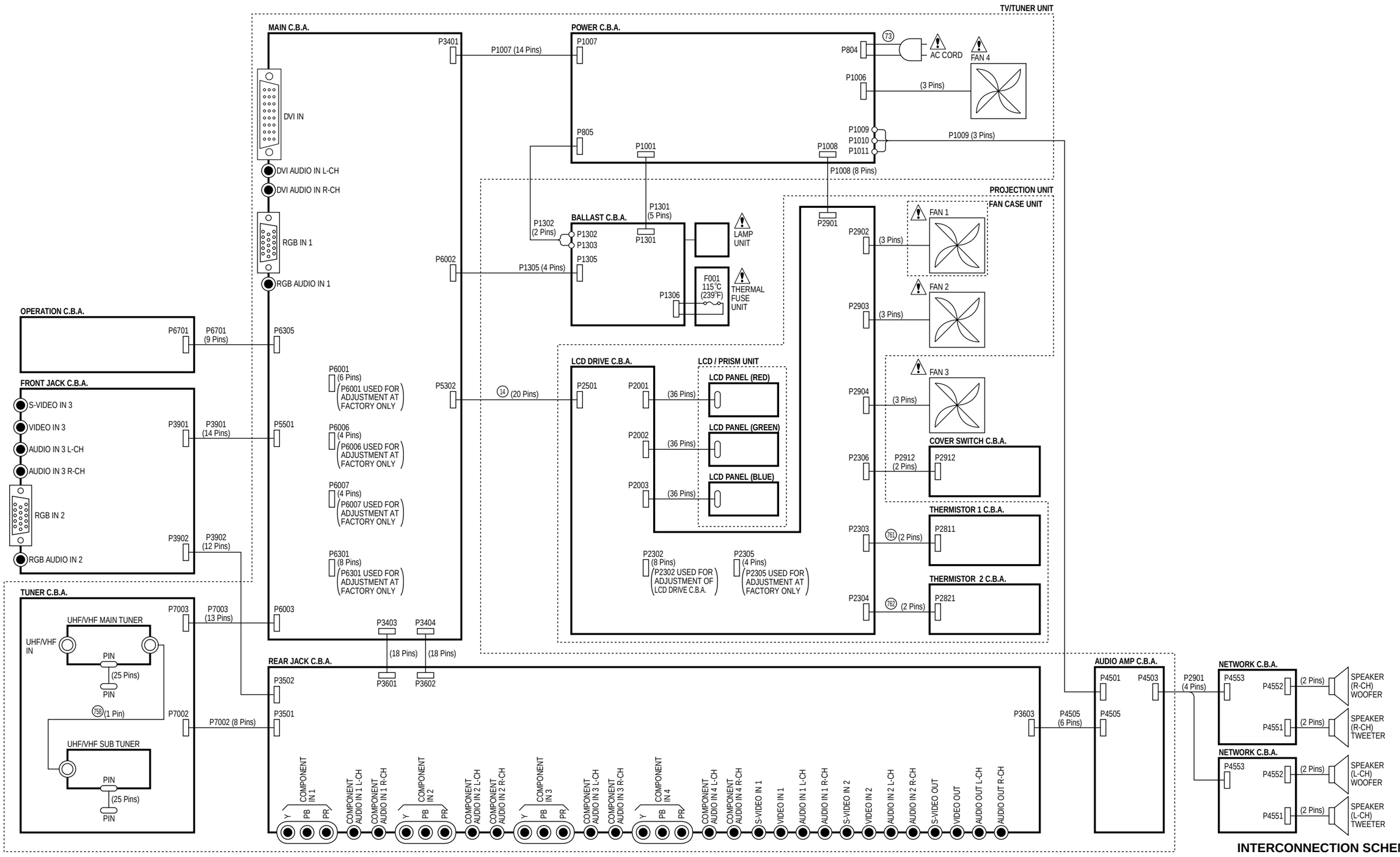
INTERCONNECTION SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

THERMAL FUSE UNIT REPLACEMENT NOTE:
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE NUMBER LSJA0464-FE (115℃).
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME TYPE NUMÉRO LSJA0464-FE (115℃)

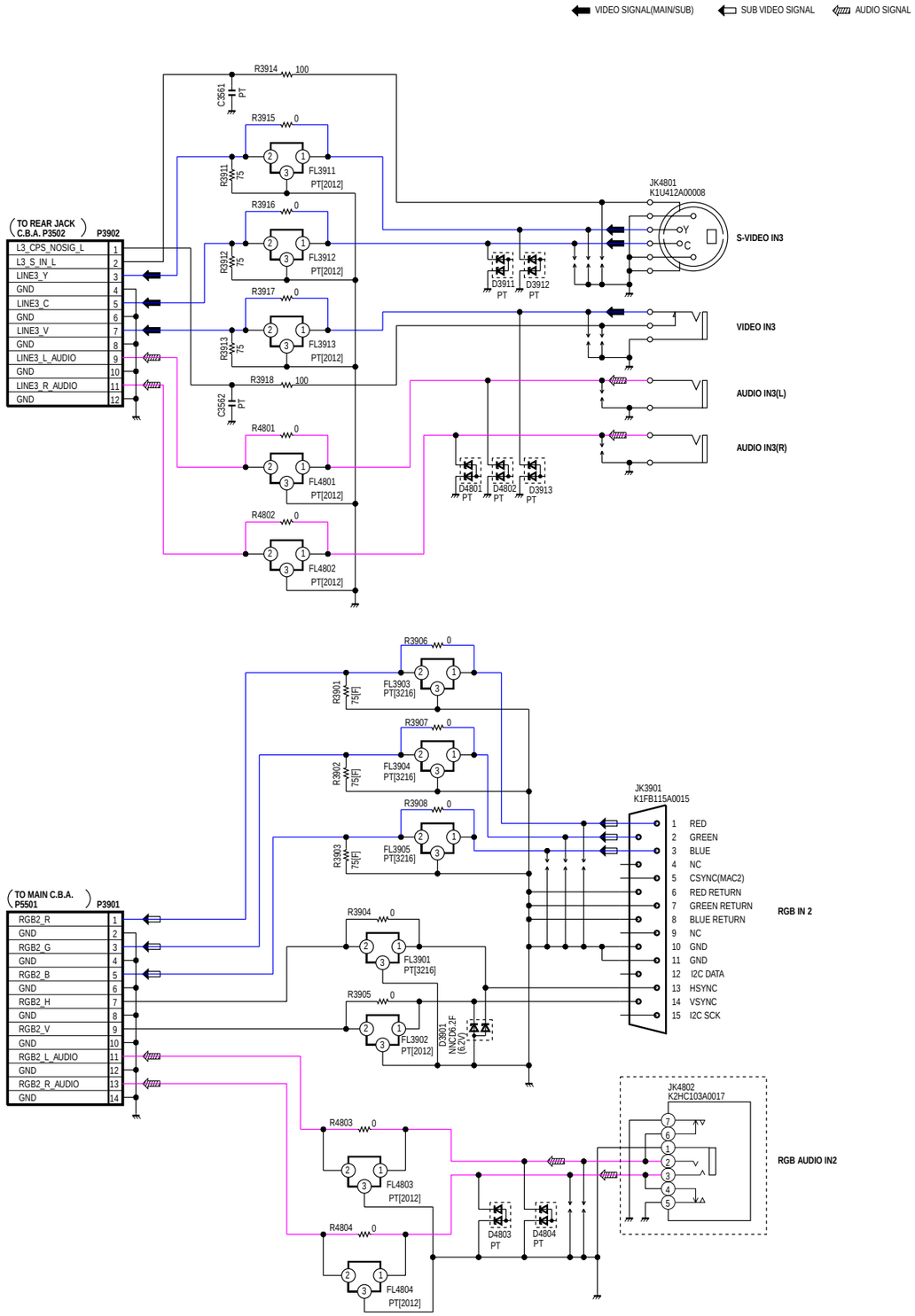
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
THE LAMP UNIT IS NOT SUPPLIED AS A REPLACEMENT PART. WHEN REPLACING, REPLACE THE LAMP UNIT WHICH IS SUPPLIED AS A OPTIONAL ACCESSORY.



INTERCONNECTION SCHEMATIC DIAGRAM
PT-50LC13

FRONT JACK SCHEMATIC DIAGRAM



NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

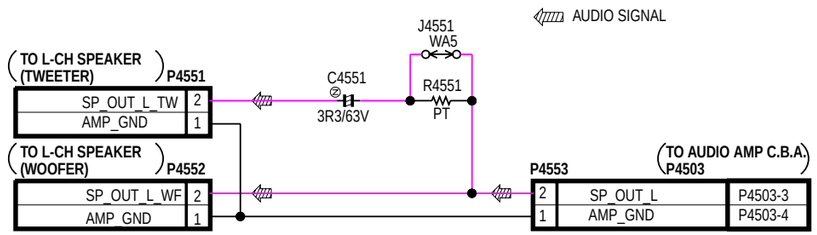
LSJB3094
FRONT JACK SCHEMATIC DIAGRAM
PT-50LC13

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

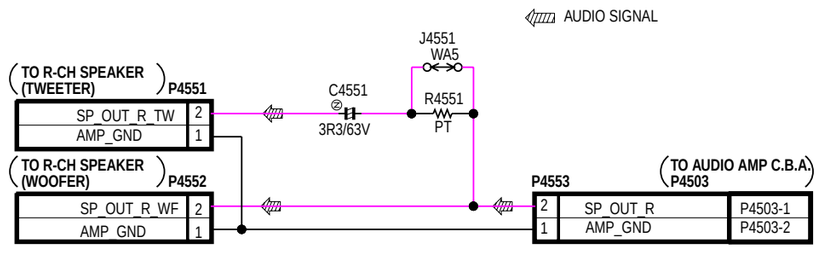
NOTE:
PARTS MARKED "PT" ARE NOT USED.

NETWORK SCHEMATIC DIAGRAM
(FOR L-CH SPEAKER)



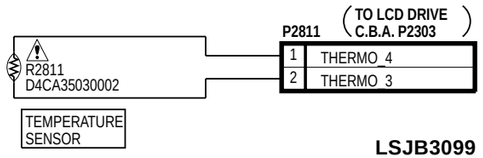
LSJB3097

NETWORK SCHEMATIC DIAGRAM
(FOR R-CH SPEAKER)



LSJB3097

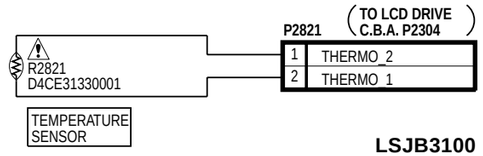
THERMISTOR 1 SCHEMATIC DIAGRAM



LSJB3099

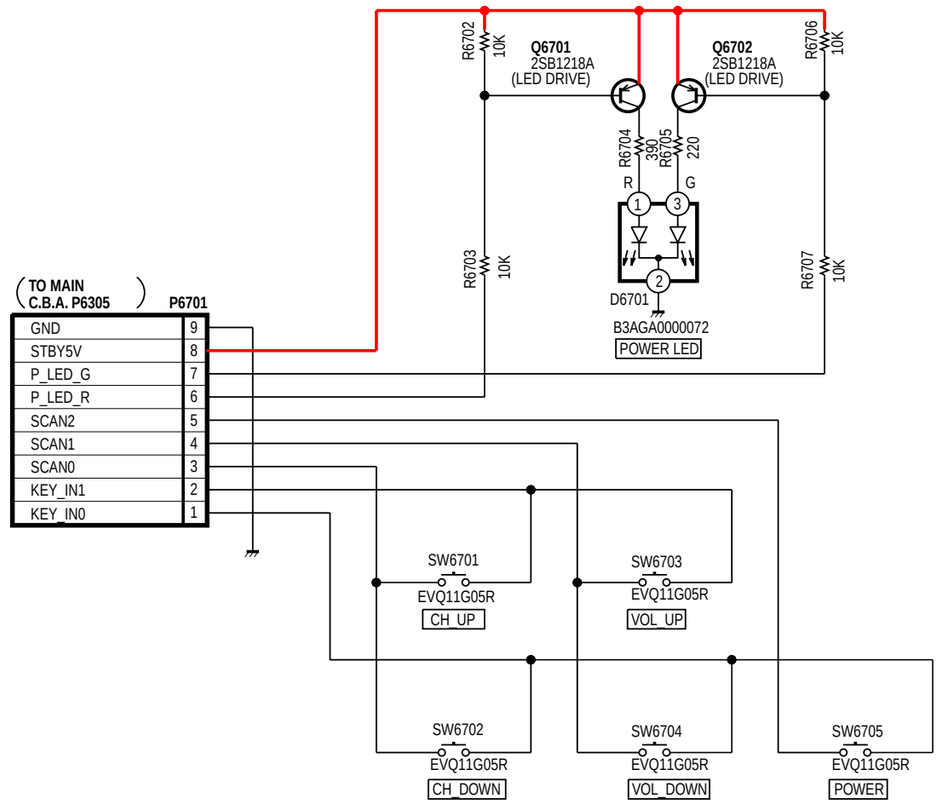
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

THERMISTOR 2 SCHEMATIC DIAGRAM



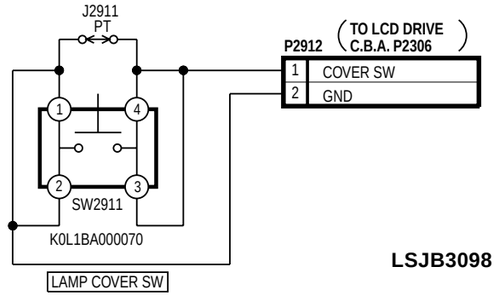
LSJB3100

OPERATION SCHEMATIC DIAGRAM



LSJB3096

COVER SWITCH SCHEMATIC DIAGRAM



LSJB3098

NETWORK SCHEMATIC DIAGRAM
THERMISTOR 1 SCHEMATIC DIAGRAM
THERMISTOR 2 SCHEMATIC DIAGRAM
OPERATION SCHEMATIC DIAGRAM
COVER SWITCH SCHEMATIC DIAGRAM

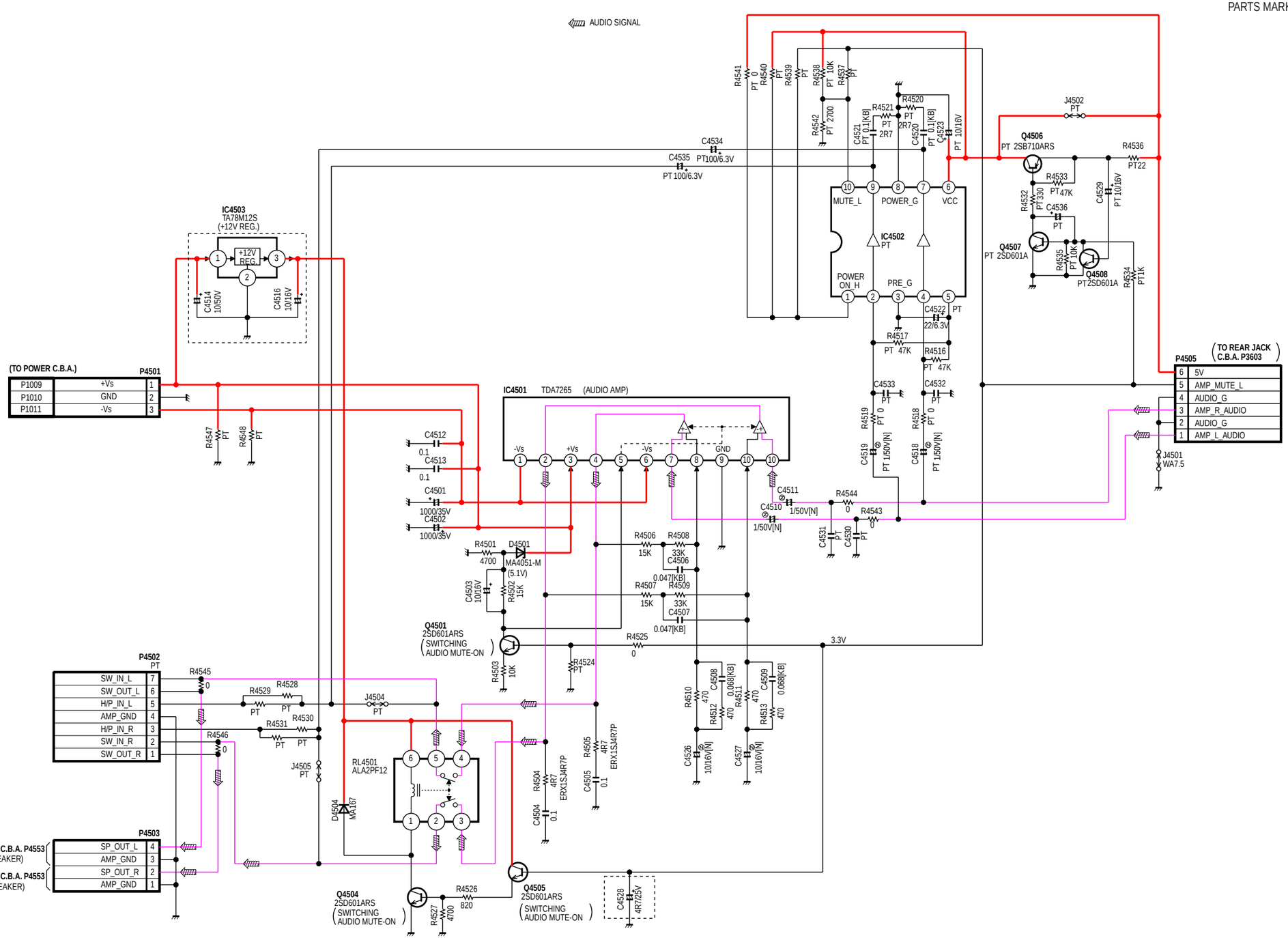
PT-50LC13

AUDIO AMP SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS MARKED "PT" ARE NOT USED.



LINK TO VOLTAGE CHART

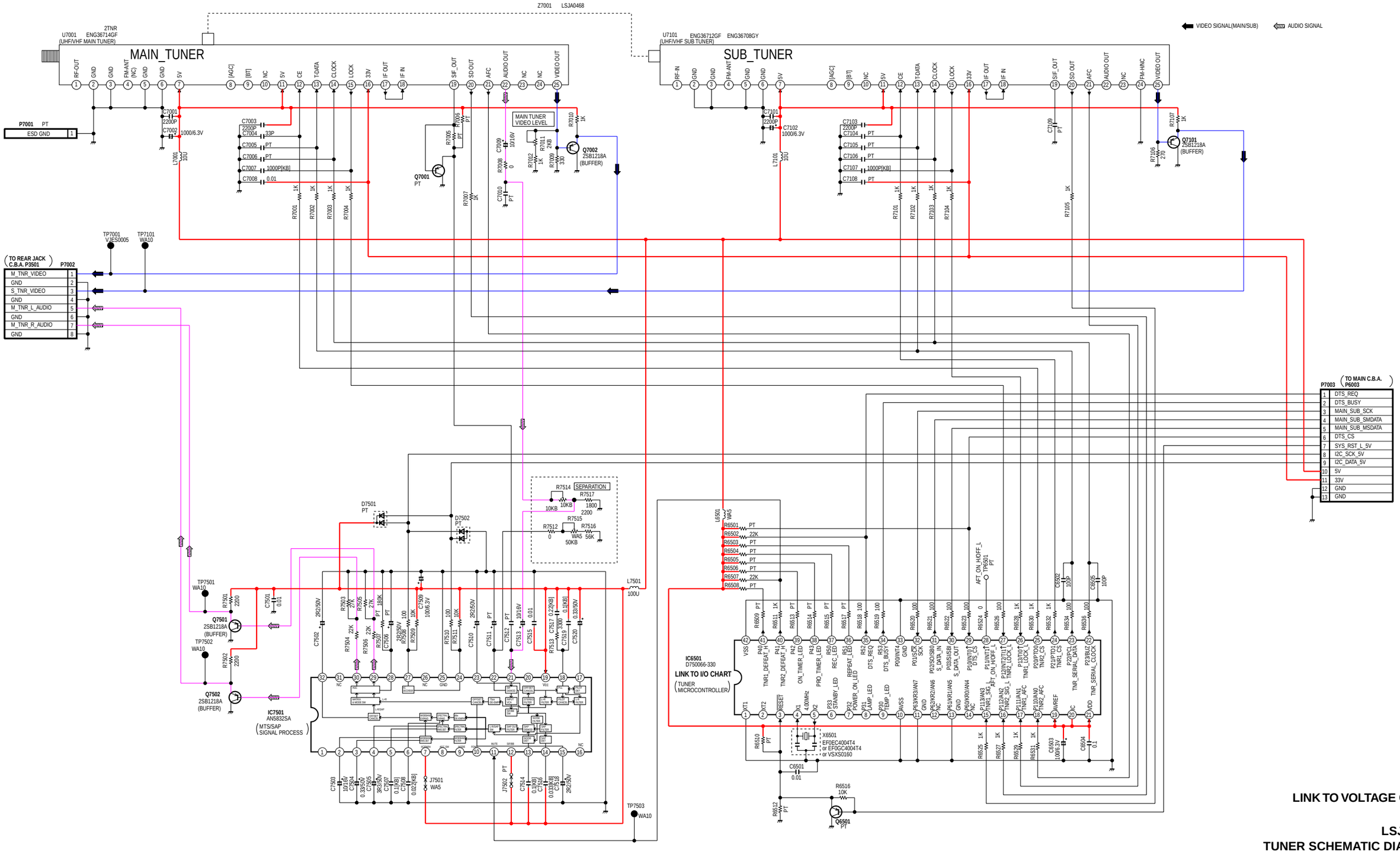
LSJB3092
AUDIO AMP SCHEMATIC DIAGRAM
PT-50LC13

TUNER SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS MARKED "PT" ARE NOT USED.



LINK TO VOLTAGE CHART

LSJB3095
TUNER SCHEMATIC DIAGRAM
PT-50LC13

I/O CHART OF IC6501

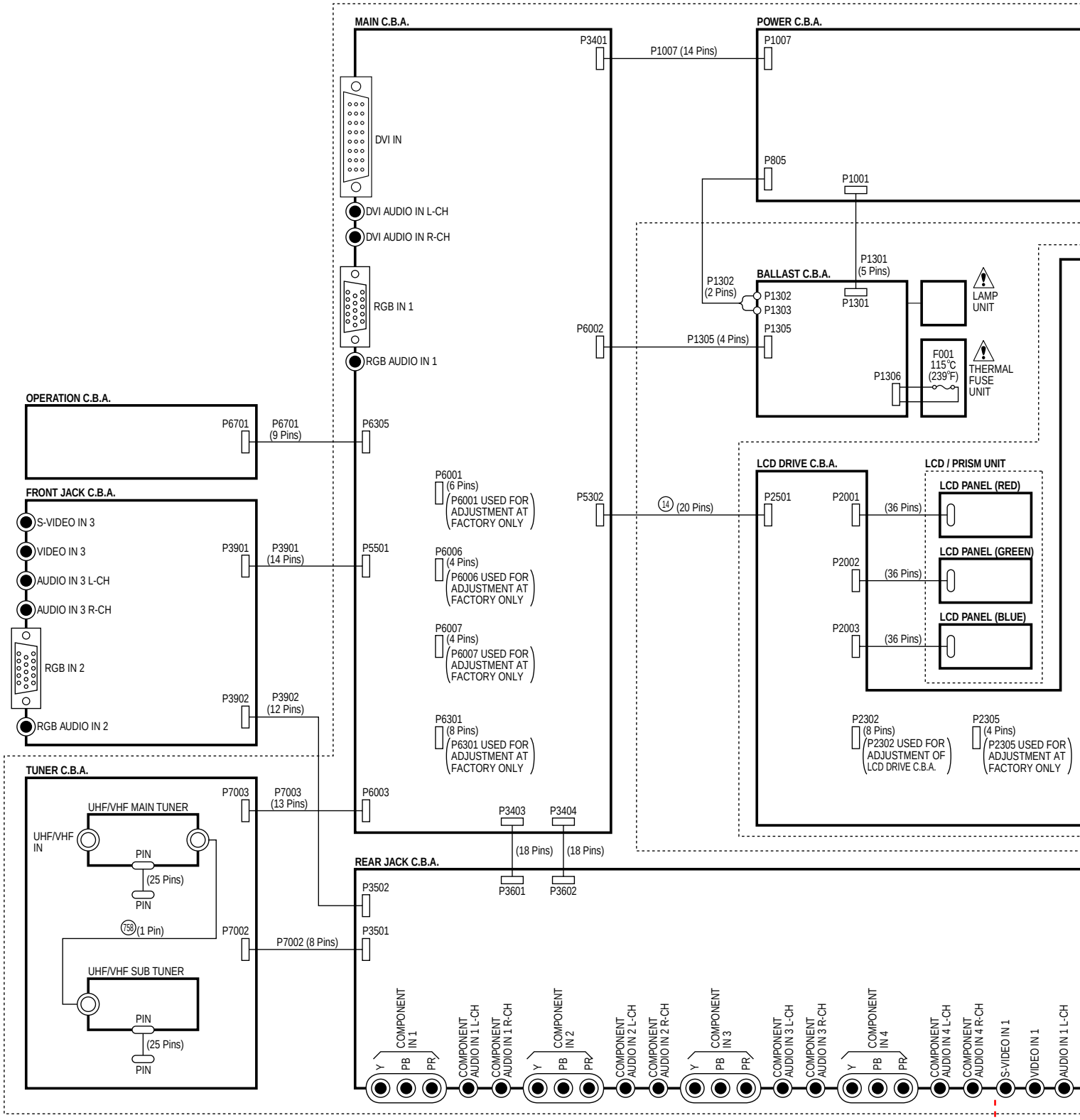
Pin No.	I/O	Signal Name	Description
1	-	XT1	(Not used)
2	-	XT2	(Not used)
3	I	RESET	RESET(L)
4	I	X1	4MHz OSCILLATION
5	O	X2	4MHz OSCILLATION
6	-	STANDBY_LED	(Not used)
7	-	POWER_ON_LED	(Not used)
8	-	LAMP_LED	(Not used)
9	-	TEMP_LED	(Not used)
10	-	AVSS	GND
11	-	GND	GND
12	-	NC	(Not used)
13	-	GND	GND
14	-	NC	(Not used)
15	I	TNR1_SIG_L	SUB TUNER SIGNAL(L)
16	I	TNR2_SIG_L	MAIN TUNER SIGNAL(L)
17	I	TNR1_AFC	SUB TUNER AFC
18	I	TNR2_AFC	MAIN TUNER AFC
19	I	AVREF	V-REF FOR IC6501
20	-	IC	(Not used)
21	I	VDD	VDD(+5V)
22	O	TNR_SERIAL_CLOCK	TUNER SERIAL CLOCK
23	O	TNR_SERIAL_DATA	TUNER SERIAL DATA
24	O	TNR1_CS	SUB TUNER CS(H)
25	O	TNR2_CS	MAIN TUNER CS(H)
26	I	TNR1_LOCK_L	SUB TUNER CH FREQUENCY LOCK(L)
27	I	TNR2_LOCK_L	MAIN TUNER CH FREQUENCY LOCK(L)
28	-	AFT_ON_H/OFF_L	(Not used)
29	I	DTS_CS	DTS CS(H)
30	I	S_DATA_OUT	SERIAL DATA 0
31	O	S_DATA_IN	SERIAL DATA 1
32	I	SCK	SERIAL CLOCK
33	-	GND	GND
34	O	DTS_BUSY	DTS BUSY(L)
35	O	DTS_REQ	DTS REQUEST(L)
36	-	REPEAT_LED	(Not used)
37	-	REC_LED	(Not used)
38	-	PRO_TIMER_LED	(Not used)
39	-	ON_TIMER_LED	(Not used)
40	O	TNR2_DEFEAT_H	TUNER AUDIO DEFEAT(H)
41	-	TNR1_DEFEAT_H	(Not used)
42	-	VSS	GND

9.2. INTERCONNECTION SCHEMATIC DIAGRAM

INTERCONNECTION SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

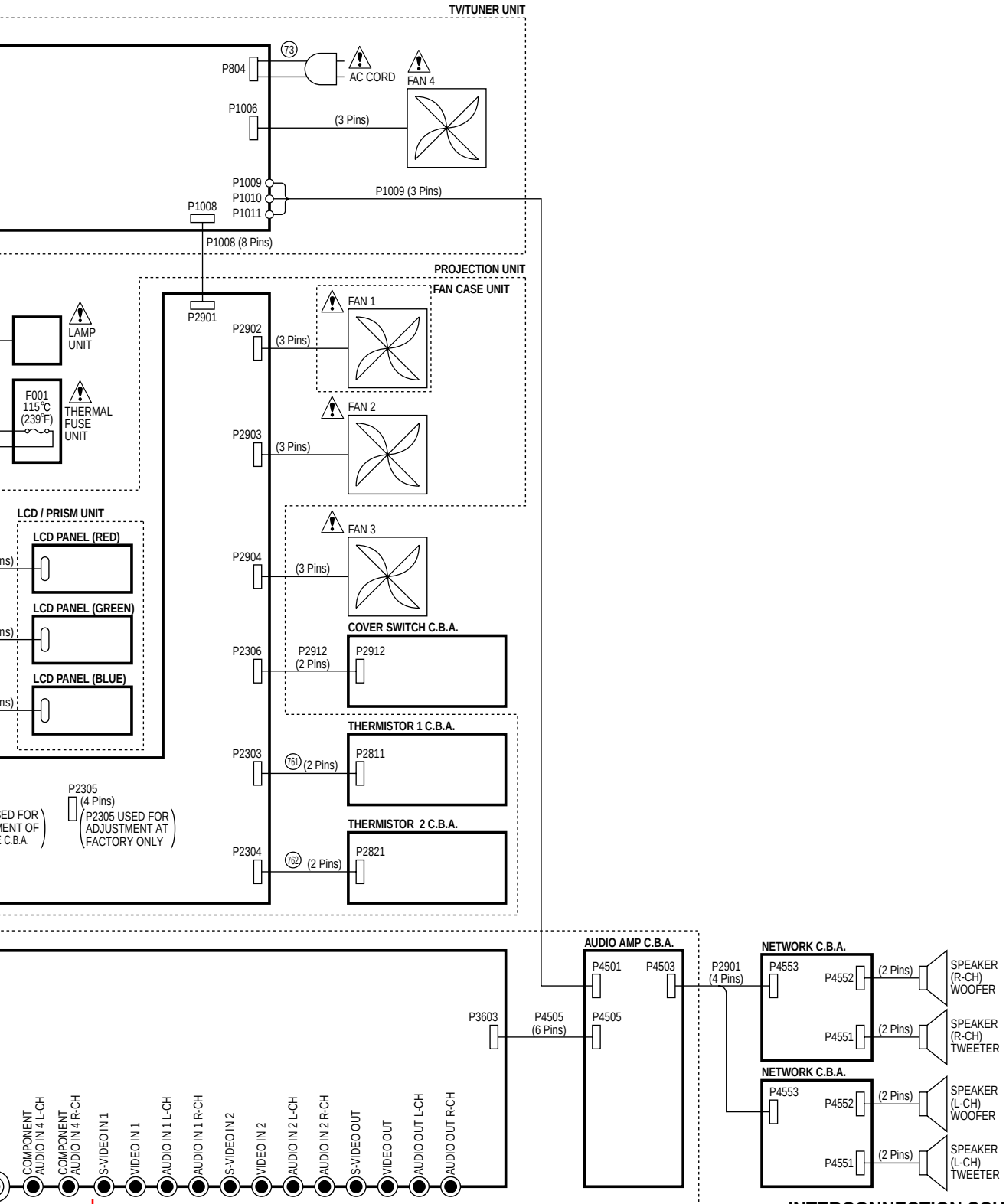
THERMAL FUSE UNIT REPLACEMENT NOTE:
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE NUMBER LSJA0464-FE (115℃).
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME TYPE NUMÉRO LSJA0464-FE (115℃)



RE HAZARD,
0464-FE (115°C).
RISQUES

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

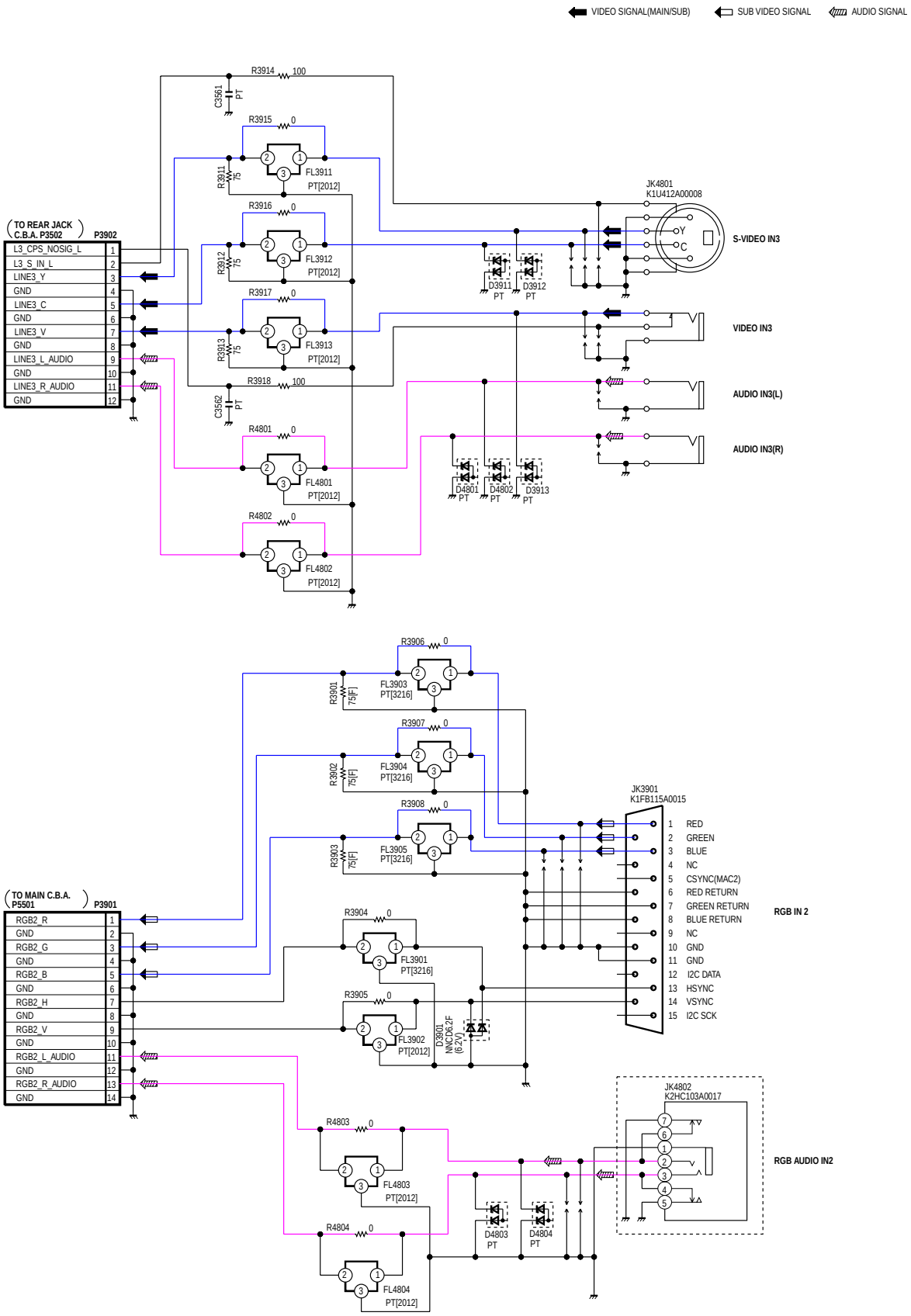
NOTE:
THE LAMP UNIT IS NOT SUPPLIED AS A REPLACEMENT PART. WHEN REPLACING, REPLACE THE LAMP UNIT WHICH IS SUPPLIED AS A OPTIONAL ACCESSORY.



INTERCONNECTION SCHEMATIC DIAGRAM
PT-50LC13

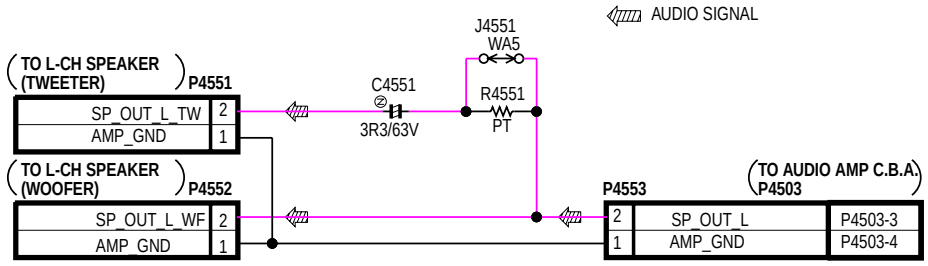
9.3. FRONT JACK SCHEMATIC DIAGRAM

FRONT JACK SCHEMATIC DIAGRAM



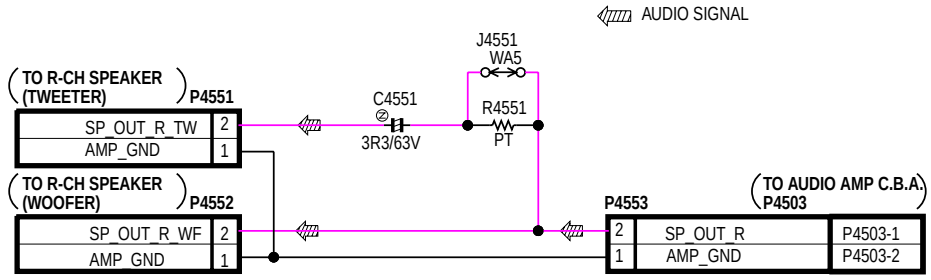
9.4. NETWORK/ THERMISTOR 1/ THERMISTOR 2/ OPERATION/ COVER SWITCH

NETWORK SCHEMATIC DIAGRAM
(FOR L-CH SPEAKER)



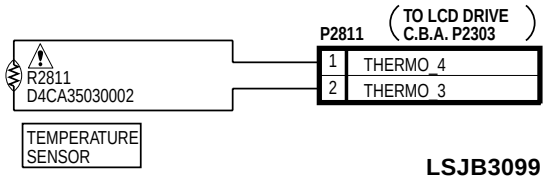
LSJB3097

NETWORK SCHEMATIC DIAGRAM
(FOR R-CH SPEAKER)



LSJB3097

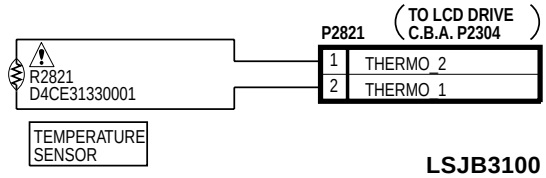
THERMISTOR 1 SCHEMATIC DIAGRAM



LSJB3099

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

THERMISTOR 2 SCHEMATIC DIAGRAM



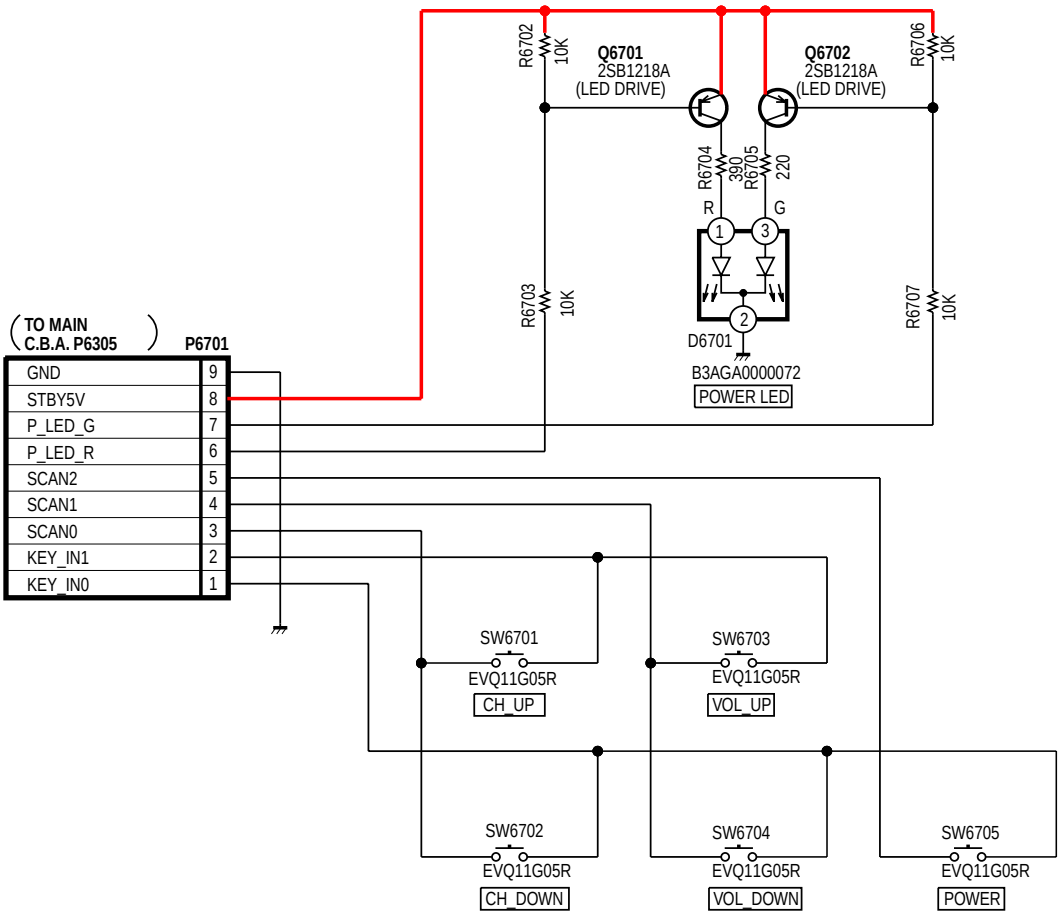
LSJB3100

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

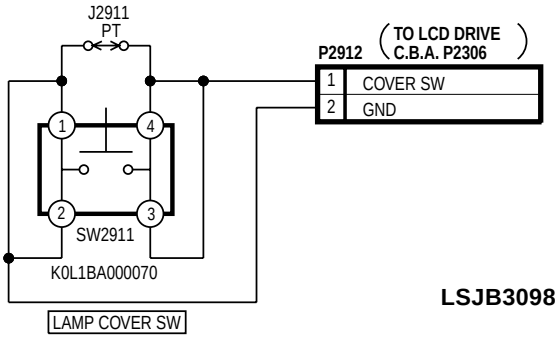
NOTE:
PARTS MARKED "PT" ARE NOT USED.

OPERATION SCHEMATIC DIAGRAM



LSJB3096

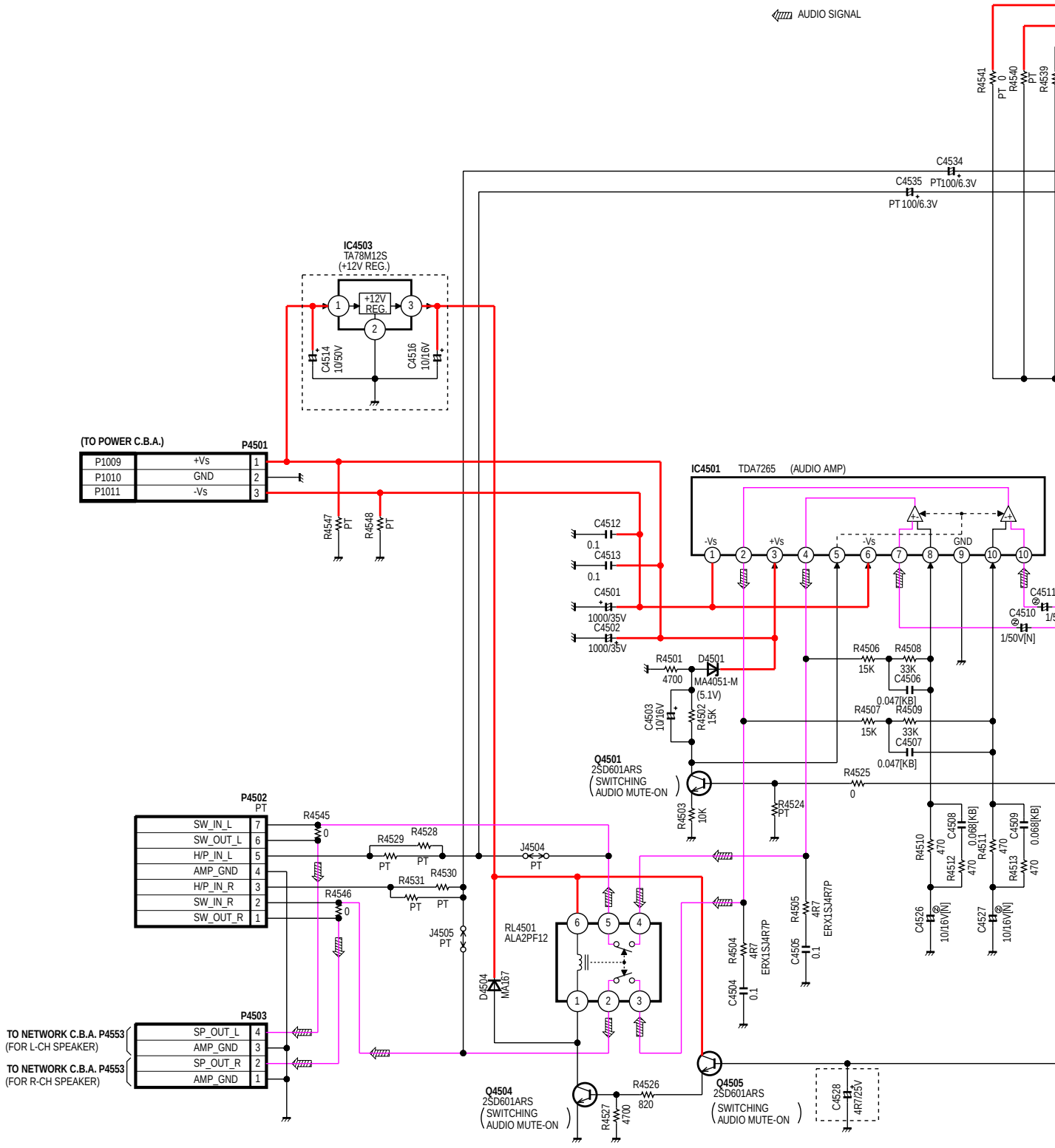
COVER SWITCH SCHEMATIC DIAGRAM



LSJB3098

NETWORK SCHEMATIC DIAGRAM
THERMISTOR 1 SCHEMATIC DIAGRAM
THERMISTOR 2 SCHEMATIC DIAGRAM
OPERATION SCHEMATIC DIAGRAM
COVER SWITCH SCHEMATIC DIAGRAM
PT-50LC13

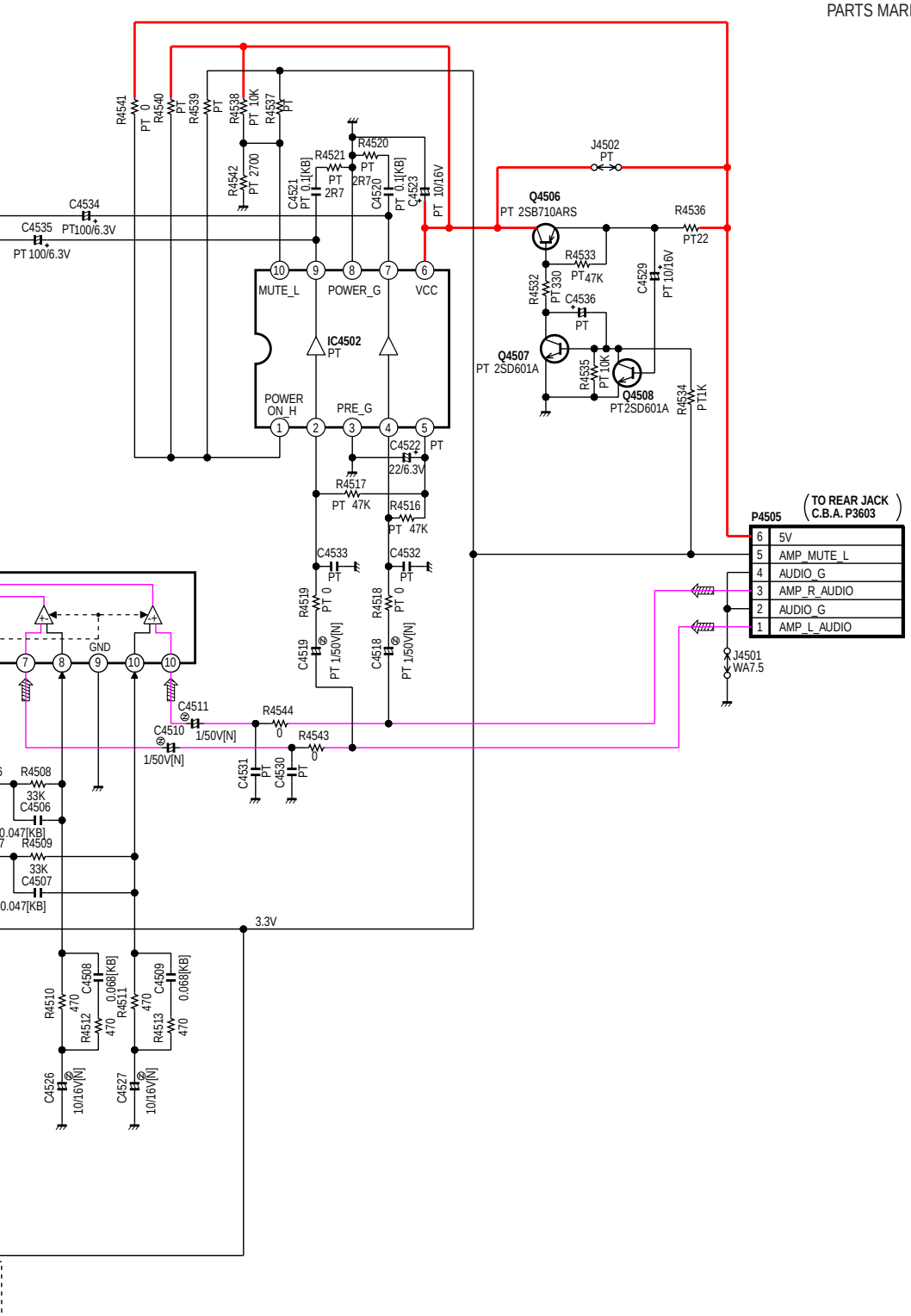
AUDIO AMP SCHEMATIC DIAGRAM



NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

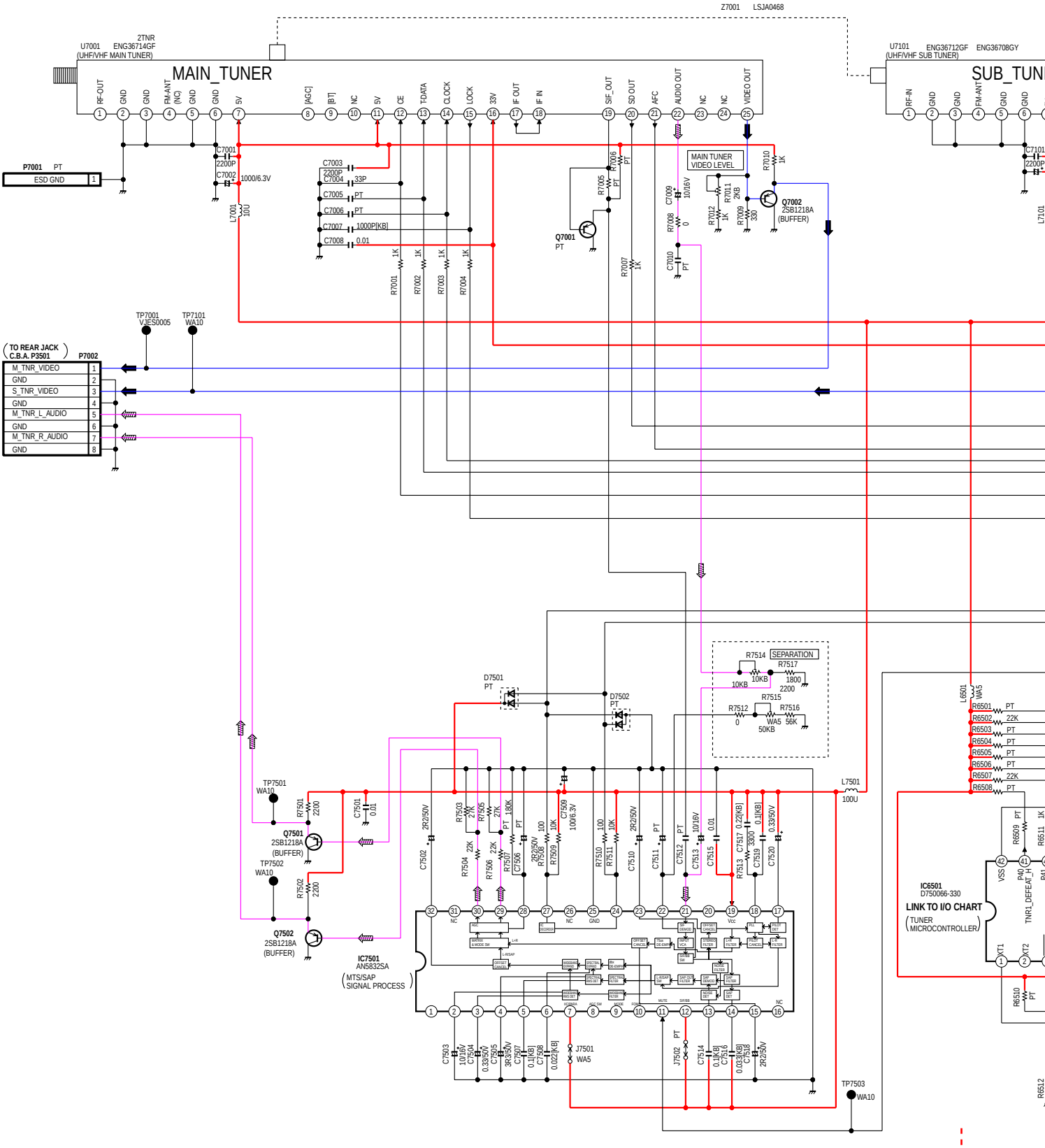


LINK TO VOLTAGE CHART

LSJB3092
AUDIO AMP SCHEMATIC DIAGRAM
PT-50LC13

9.6. TUNER SCHEMATIC DIAGRAM

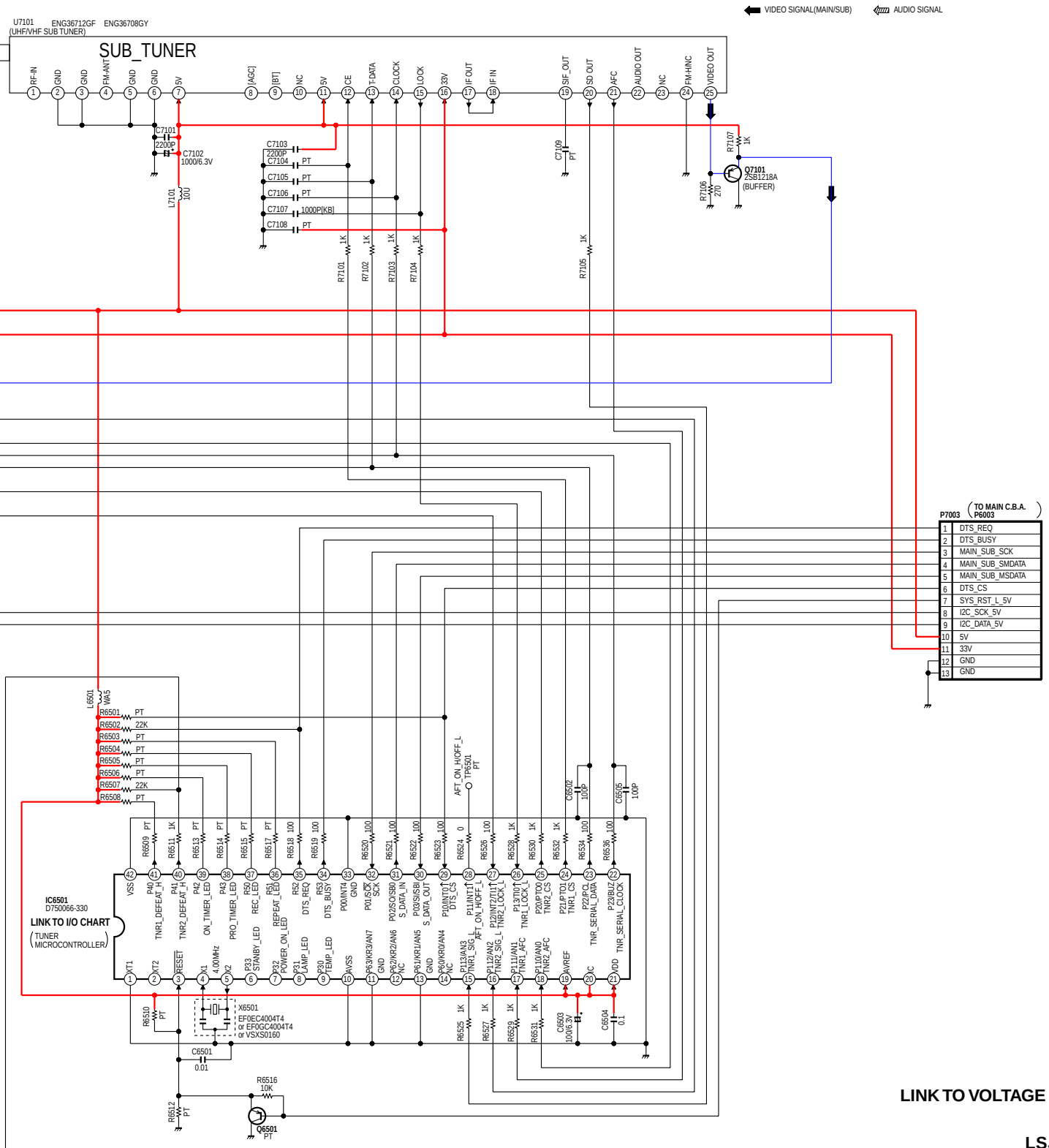
TUNER SCHEMATIC DIAGRAM



NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS MARKED "PT" ARE NOT USED.



LINK TO VOLTAGE CHART

LSJB3095
TUNER SCHEMATIC DIAGRAM
PT-50LC13

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

TUNER C.B.A.

MODE / PIN NO.	STOP
IC6501	
1	0
2	---
3	4.9
4	2.7
5	3.5
6	---
7	---
8	---
9	---
10	0
11	0
12	---
13	0
14	---
15	4.6
16	0.1
17	2.4
18	3.0
19	4.9
20	4.9
21	5.0
22	4.4
23	0.4
24	0.2
25	0.2
26	4.8
27	0.1
28	4.8
29	4.8
30	4.9
31	3.2
32	4.9
33	0
34	3.6
35	4.8
36	0
37	0
38	0
39	0
40	0
41	4.8
42	0
IC7501	
1	---
2	0.3
3	2.6
4	0.5
5	2.4
6	2.1
7	4.8
8	---
9	---
10	---
11	0.2

MODE / PIN NO.	STOP
12	0
13	3.2
14	3.1
15	2.3
16	---
17	3.2
18	3.2
19	5.0
20	---
21	2.2
22	1.2
23	1.6
24	4.9
25	0
26	---
27	4.9
28	2.0
29	2.2
30	2.2
31	---
32	2.2
Q7002	
E	1.3
C	0
B	0.6
Q7101	
E	2.1
C	0
B	1.4
Q7501	
E	1.9
C	0
B	1.3
Q7502	
E	1.9
C	0
B	1.3
TP6501	4.8
TP7001	1.4
TP7101	2.1
TP7501	1.9
TP7502	1.9
TP7503	0.2

AUDIO AMP C.B.A.

MODE / PIN NO.	STOP
IC4501	
1	-19.2
2	0
3	19.2
4	0
5	15.0
6	-19.2
7	0
8	0
9	0
10	0
11	0
IC4503	
1	19.2
2	0
3	12.0
Q4501	
E	0
C	15.0
B	0
Q4504	
E	0
C	12.0
B	0
Q4505	
E	0
C	12.0
B	0

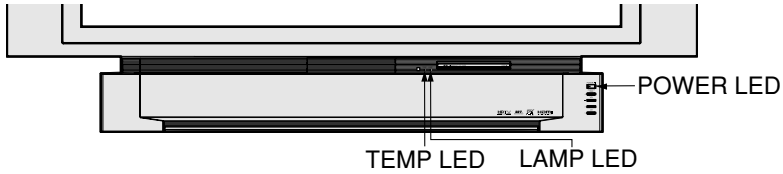
VOLTAGE CHART
PT-50LC13

LED INDICATIONS FOR ERROR CONDITION

Each LED indication facilitates finding the cause of the error.

When an error is detected, each LED on the front will light up or flash when the AC Cord is plugged in.

The detected error data will not be stored in the EEPROM. This data is cleared when the AC Cord is unplugged.



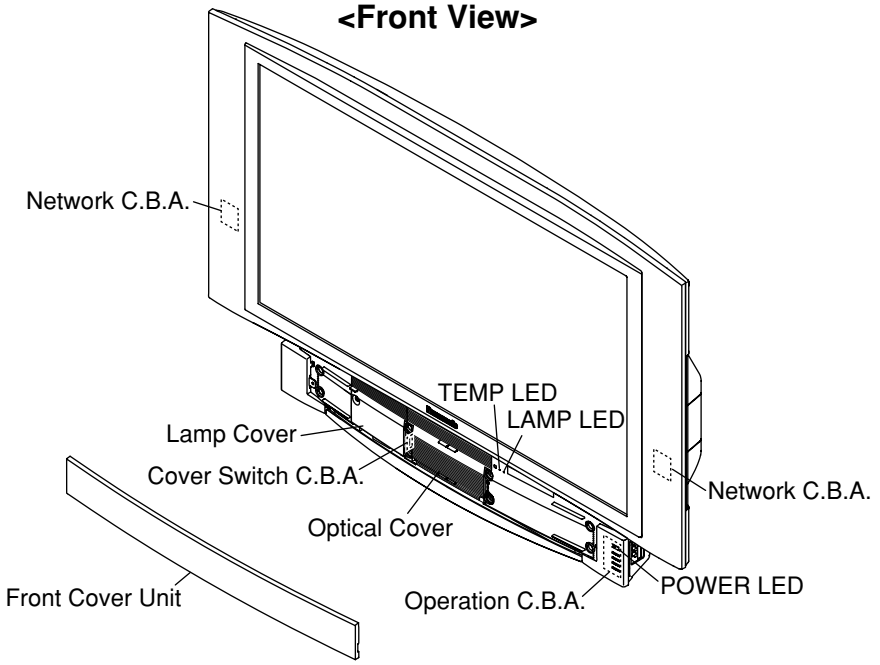
Error No.	Error Information	ERROR DESCRIPTION	POWER LED	TEMP LED	LAMP LED	(Note 3) OSD	(Note 4) LAMP OFF
1)	**Fan1, Fan2 or Fan3 stopped**	IC6302(pin6) detects the stop of FAN1, FAN2 or FAN3, then indicates the error when the FAN1, FAN2 or FAN3 is stopped.	flashes orange once every 5 seconds	-	-		○
2)	**Lamp Cover open**	IC6003(pin66) detects the Lamp Cover condition (open or close), then indicates the error when the Lamp Cover is open.	flashes orange twice every 5 seconds	-	-		○
3)	**Temperature Sensor shorted or open**	IC6302(pin4 and 5) detects open or short of the Temperature Sensor (R2811) on Thermistor 1 C.B.A., then indicates the error when Temperature Sensor is open or shorted. (The error is not detected for 1 minute after Lamp ON.)	-	flashes once every 5 seconds	-		○
4)	**Abnormal Temperature**	IC6302(pin4 and 5) detects the temperature near the FAN1 by the Temperature Sensor (R2811) on Thermistor 1 C.B.A., then indicates the error when the temperature exceeds 55℃ (131℉). (The error is not detected for 1 minute after Lamp ON.)	-	flashes twice every 5 seconds	-		○
5)	**Ballast Error (abnormal Lamp)**	IC6003(pin19) detects the error of the Lamp, and Ballast C.B.A., then indicates the error when an inner malfunction of Ballast C.B.A. occurs, the Lamp voltage becomes more than 130V or less than 30V, the Lamp is cracked, the Thermal Fuse Unit is open or the Lamp is not cooled off.	(flashes green for 140 seconds. ⇩ flashes red	-	flashes once every 5 seconds		○
6)	**Ballast Error (abnormal Lamp voltage)**	IC6003(pin19) detects the error of the Lamp, then indicates the error when the Lamp is defective.	(flashes green for 140 seconds. ⇩ flashes red	-	flashes twice every 5 seconds		○
7)	**Ballast Error (abnormal temperature)**	IC6003(pin19) detects the error of Ballast C.B.A., then indicates the error when the thermal fuse (F1302) 117℃ (243℉) in Ballast C.B.A. is open.	(flashes green for 140 seconds. ⇩ flashes red	-	flashes 3 times every 5 seconds		○
8)	**Ballast Error (other causes)**	IC6003(pin19) detects the error of Ballast C.B.A., then indicates the error when an inner malfunction of Ballast C.B.A. occurs.	(flashes green for 140 seconds. ⇩ flashes red	-	flashes 4 times every 5 seconds		○
9)	**Abnormal Voltage on 33 V line of Main C.B.A.**	IC6302(pin61) detects +33V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +10V.	flashes orange 5 times every 5 seconds	flashes once every 5 seconds	flashes once every 5 seconds		○
10)	**Abnormal Voltage on 9 V line of Main C.B.A.**	IC6302(pin64) detects +9V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +2V.	flashes orange 6 times every 5 seconds	flashes twice every 5 seconds	flashes twice every 5 seconds		○
11)	**Abnormal Voltage on 5 V line of Main C.B.A.**	IC6302(pin63) detects +5V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +1V.	flashes orange 7 times every 5 seconds	flashes 3 times every 5 seconds	flashes 3 times every 5 seconds		○
12)	**Abnormal Voltage on 3.3 V line of Main C.B.A.**	IC6302(pin7) detects +3.3V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +1.5V.	flashes orange 8 times every 5 seconds	flashes 4 times every 5 seconds	flashes 4 times every 5 seconds		○
13)	**Abnormal Voltage on -5 V line of Main C.B.A.**	IC6302(pin62) detects -5V line voltage on Main C.B.A., then indicates the error when the voltage becomes more than 0V.	flashes orange 9 times every 5 seconds	flashes 5 times every 5 seconds	flashes 5 times every 5 seconds		○
14)	**Abnormal Voltage on 6.5 V line of Main C.B.A.**	IC6302(pin60) detects +6.5V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +2V.	flashes orange 10 times every 5 seconds	flashes 6 times every 5 seconds	flashes 6 times every 5 seconds		○
15)	**Temperature Sensor shorted or open**	IC6302(pin2 and 3) detects open or short of the Temperature Sensor (R2821) on Thermistor 2 C.B.A., then indicates the error when Temperature Sensor is open or shorted. (The error is not detected for 4 minutes after Lamp ON.)	-	flashes 3 times every 5 seconds	-		○
16)	**Abnormal Temperature**	IC6302(pin2 and 3) detects the temperature near the Lamp by the Temperature Sensor (R2821) on Thermistor 2 C.B.A., then indicates the error when the temperature exceeds 85℃ (185℉). (The error is not detected for 4 minutes after Lamp ON.)	-	flashes 4 times every 5 seconds	-		○
17)	**Clogged air filter**	IC6003(pin65) detects clogged air filter when the filter detection value exceeds the standard value.	-	flashes 5 times every 5 seconds	-	○	○
18)	**Request for Lamp Replacement**	When accumulated Lamp operation time reaches 10,000 hours, OSD (replacing the Lamp) appears on the screen. Note: The Lamp time is stored in EEPROM (IC6005).	-	-	lights up	○	
-	**Forced cooling**	Indicated during forced cooling.	flashes red for 10 minutes	-	flashes 5 times every 5 seconds		

Note:

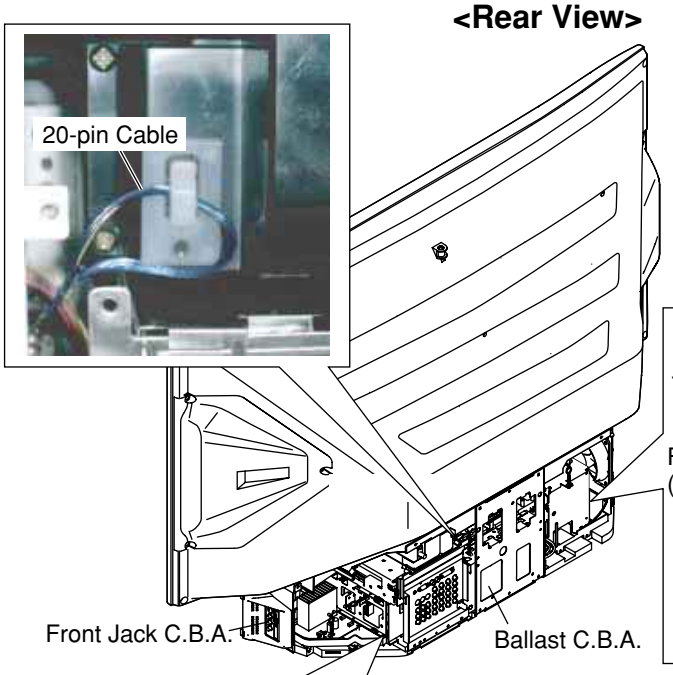
1. When any of the above errors has occurred, the LED will flash as shown above.
2. When two or more errors have occurred at the same time, the LED will alternate light up and/or flash patterns as shown above every 5 seconds.
3. Warning OSD appears when the air filter is clogged or accumulated Lamp operation time reaches 10,000 hours.
4. LAMP OFF: The LED will flash immediately after the Lamp comes off.
5. IC6003 and IC6302 are mounted on the Main C.B.A.

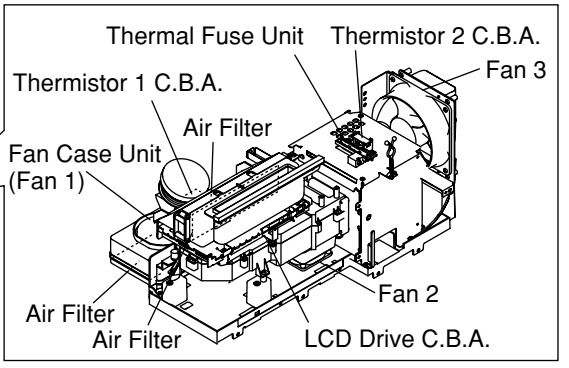
MAIN PARTS LOCATION

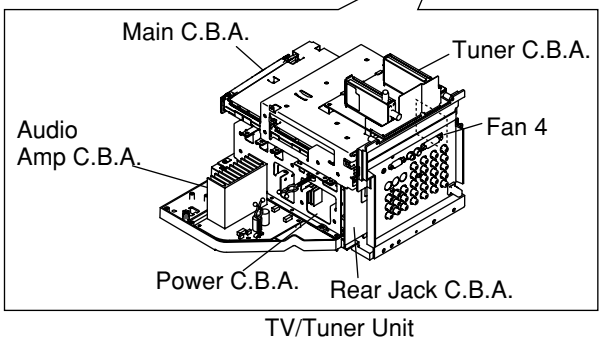
<Front View>



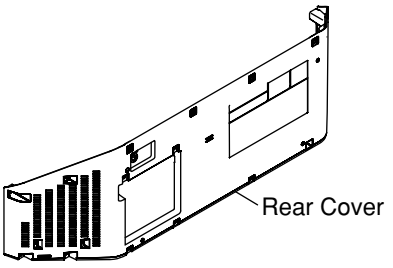
<Rear View>







TV/Tuner Unit



SERVICE MODE

In this mode, the following information can be confirmed on the screen:

Service Mode (1/3)
- Total Lamp elapsed time
- Current Lamp elapsed time
- The number of Lamp ON **(For reference only)**

Service Mode (2/3)
- Key detection check
- Communication check for IIC bus on the Main C.B.A.
- Communication check for serial bus on the Main C.B.A.
- EEPROM IC6006 version and build version **(For reference only)**
- EEPROM IC6306 version and build version **(For reference only)**
- IC6003 software version and build version **(For reference only)**
- IC6302 software version and build version **(For reference only)**

Service Mode (3/3)
- IC6003 Port information
- IC6302 Port information

Note:
IC6003: Main Microcontroller on the Main C.B.A.
IC6302: Sub Microcontroller on the Main C.B.A.

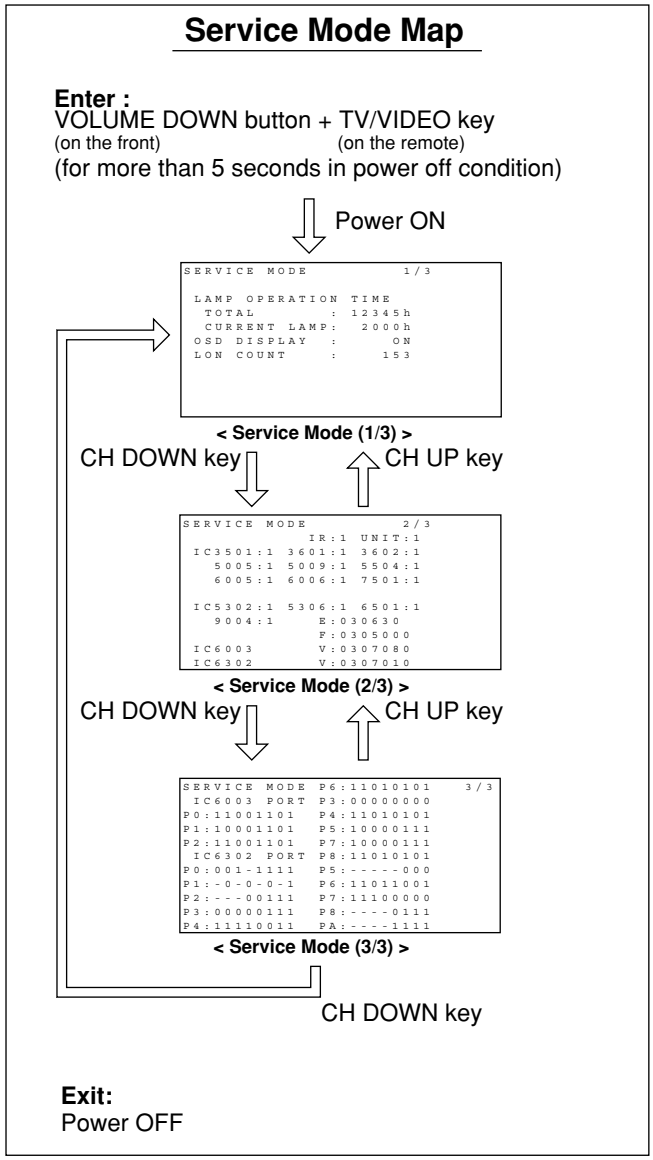
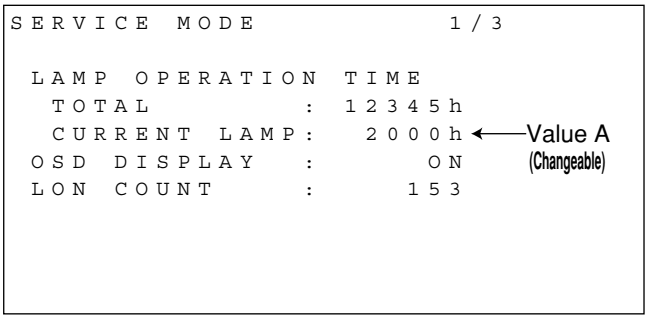


Fig. 1-1

BEFORE REMOVING THE MAIN C.B.A. OR THE TV/TUNER UNIT FROM THE UNIT AT THE USER'S LOCATION

Note:
The TV/Tuner Unit includes the Main C.B.A.

CAUTION:
1. **Be sure to make a note of the CURRENT LAMP value (value A) in Service Mode (1/3):**



<Service Mode (1/3)>

Fig. 2

LAMP OPERATION TIME is stored in EEPROM on the Main C.B.A. Therefore, before removing the Main C.B.A. or the TV/Tuner Unit at the user's location, make a note of the CURRENT LAMP value (value A) in Service Mode (1/3). Then, after installing the new Main C.B.A. or the TV/Tuner Unit at the user's location, set the CURRENT LAMP value to the original value (value A) in Service Mode.
Otherwise, OSD and LED Lamp replacement indications will be displayed at the wrong time.

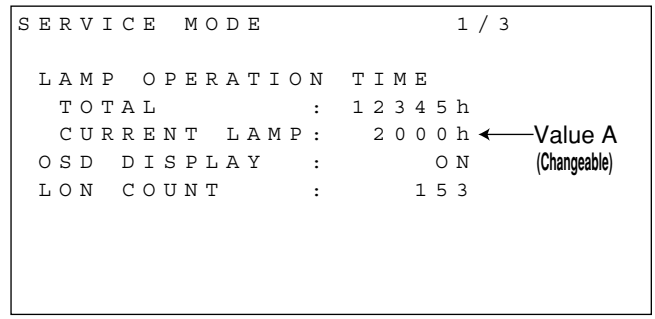
Note:
In case it is impossible to make a note of the CURRENT LAMP value because of a defective Main C.B.A., ask the customer their daily average use and the approximate age of the current Lamp. Then, calculate the CURRENT LAMP value as follows and make a note.

Daily average use (hours)	X	Approx. age (days)	=	**CURRENT LAMP** (hours)

Note:
The TOTAL value can be set to the original value in Service Mode (1/3) by similar method:
Before removing the Main C.B.A. at the user's location, make a note of the TOTAL value in Service Mode (1/3). Then, after installing the new Main C.B.A. at the user's location, set the TOTAL value to the original value in Service Mode.

WHEN REINSTALLING THE MAIN C.B.A. OR THE TV/TUNER UNIT INTO THE UNIT AT THE USER'S LOCATION

CAUTION:
1. Set CURRENT LAMP value to original value as follows.
   1) Select CURRENT LAMP in Service Mode (1/3).
   2) Press the VOLUME UP/DOWN key on the remote to change to the original value (value A) that was noted before removing the Main C.B.A. or the TV/Tuner Unit at the user's location.

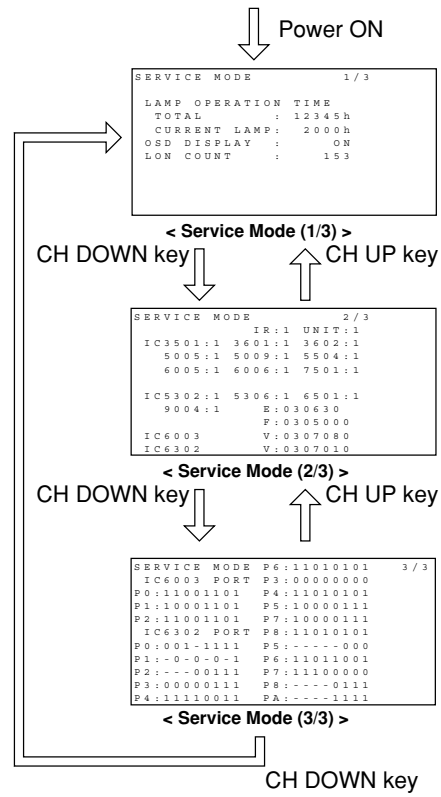


<Service Mode (1/3)>

Fig. 3

Service Mode Map

Enter :
VOLUME DOWN button + TV/VIDEO key
(on the front) (on the remote)
(for more than 5 seconds in power off condition)



Exit:
Power OFF

BEFORE REMOVING THE PROJECTION UNIT FROM THE UNIT AT THE USER'S LOCATION

1. When removing the Projection Unit, remove the Lamp from the Projection Unit and keep it. Then, reinstall this Lamp into the new Projection Unit.
2. When removing the Projection Unit, remove the Fan 3 Unit, the Top Duct 3 Unit and the 20-pin Cable from the Projection Unit and keep them. Then, reinstall the Fan 3 Unit, the Top Duct 3 Unit and the 20-pin Cable into the new Projection Unit.

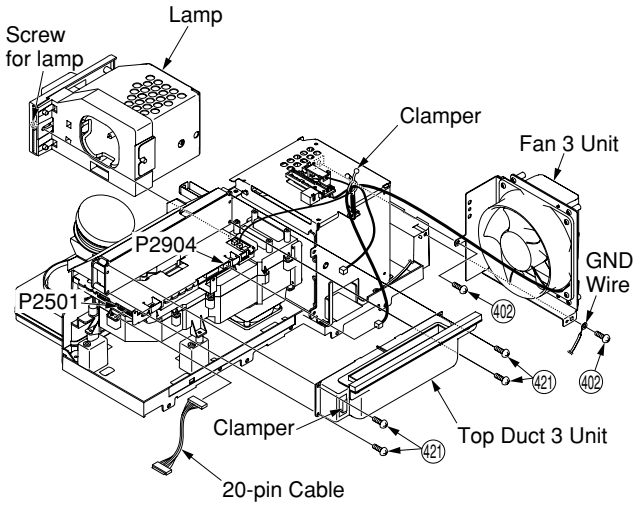


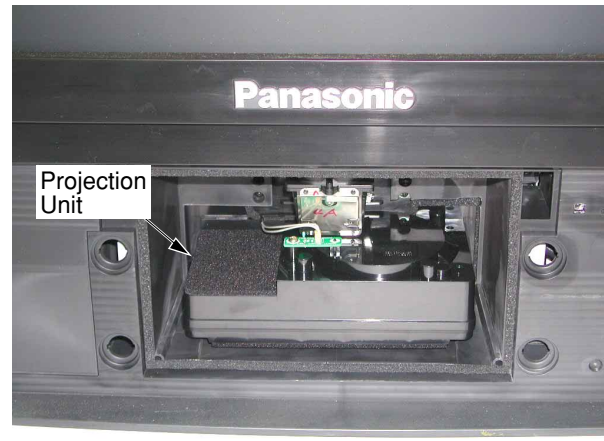
Fig. 4-1

WHEN REINSTALLING THE PROJECTION UNIT INTO THE UNIT AT THE USER'S LOCATION

1. Be sure to install the original Lamp, the Fan 3 Unit, the Top Duct 3 Unit and the 20-pin Cable into the new Projection Unit.
   CAUTION:
   Confirm that there is no dust on the Top Duct 3 Unit before installing. If there is dust, clean the Top Duct 3 Unit with a brush, etc. Otherwise, dust may adhere to the inside of the screen.
2. The following ADJUSTMENT of the Projection Unit must be performed.
   a. Mechanical Picture Position Adjustment
   b. Focus Adjustment
      Note:
      Perform this adjustment only if necessary. (Normally, it will not be necessary.)
   c. Electrical Picture Position Adjustment

Preparation of ADJUSTMENT:

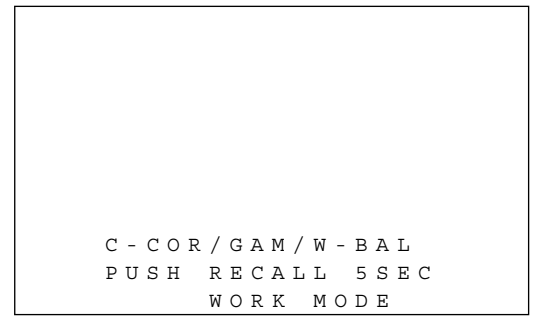
1. Install all parts except the Front Cover Unit and the Optical Cover.



(With Front Cover Unit and Optical Cover removed)
<Front View>

Fig. 4-2

2. Turn the power on.
3. Press and hold the VOLUME DOWN button on the unit and the RECALL key on the remote for more than 5 seconds in power on condition. The unit will go into Work Mode. ("WORK MODE" will appear on the screen.)



<Work Mode>

Fig. 4-3

4. 1) Then, press and hold the VOLUME DOWN button on the unit and the MOVE key on the remote for more than 5 seconds. The unit will go into the Factory Adjust Mode. (FACTORY ADJUST menu will appear.)

```
     FACTORY ADJUST      1/1
M:030780 S:0307010
  VIDEO ADJ
  SOUND
  FAN
  OTHER
  PARTIAL


  DEFAULT SET
  (SELF CHECK)
```

<Factory Adjust mode>

Fig. 4-4

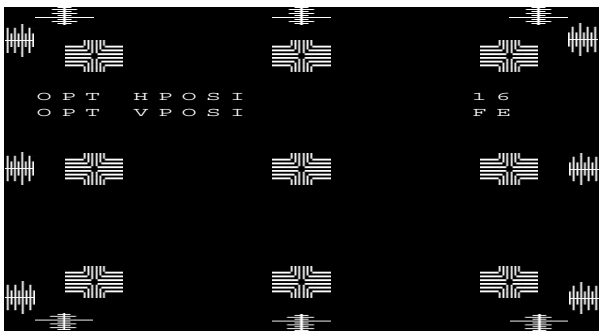
2) Then, press the CH UP/DOWN key on the remote to select “OTHER” on menu and press the ACTION key. (OTHER menu will appear.)

```
          OTHER              1/1
                             RGB1



OPT HPOSI          07
OPT VPOSI          00
FP:000000 PROTEC
GC:030630
```

<Factory Adjust Mode>
(OTHER menu 1/1)

Fig. 4-5

5. Press the VOLUME UP/DOWN key on the remote. (Focus screen will appear.)



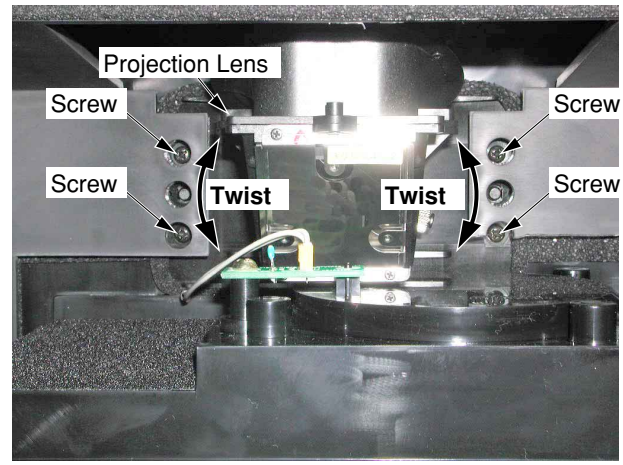
<Focus Screen>

To release this mode:

1. After completing the ADJUSTMENT, press the CH UP/DOWN key on the remote to return to the OTHER menu.
2. Then, press RECALL key twice to return to Work Mode, and press and hold the VOLUME DOWN button on the unit and the RECALL key on the remote for more than 5 seconds. Alternatively, turn off the power.
3. Then, install the Optical Cover with the 2 Screws and the Front Cover Unit.

a. Mechanical Picture Position Adjustment

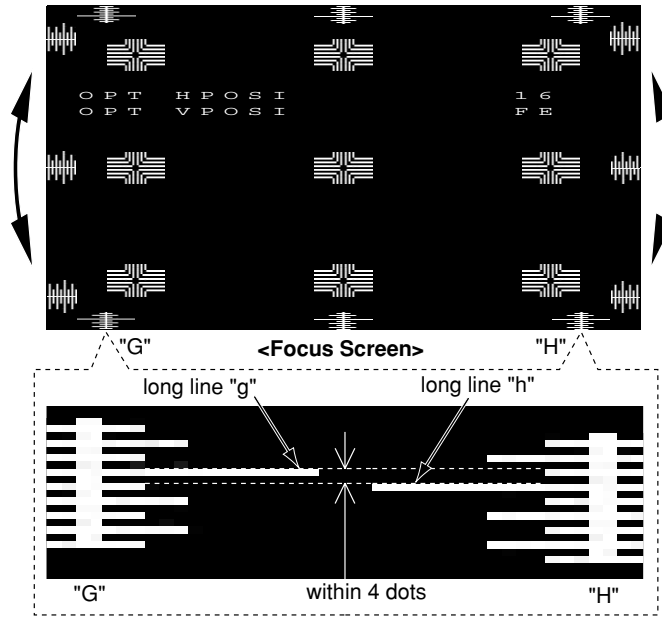
1) Loosen the 4 Screws on the Projection Unit.



<Front View>

Fig. 4-6

2) Adjust the Projection Lens by twisting so that the long line “g” and the long line “h” are within 4 dots. (The long line “g” and the long line “h” will be almost aligned horizontally.)



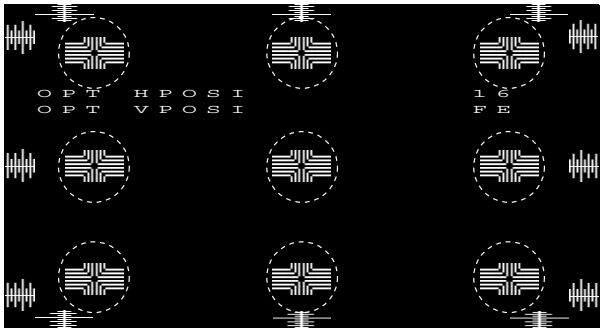
<Focus Screen>

Note:
If the Projection Lens is twisted left, the Focus Screen twists left.
If the Projection Lens is twisted right, the Focus Screen twists right.

3) Tighten the 4 Screws while fixing the Projection Lens.

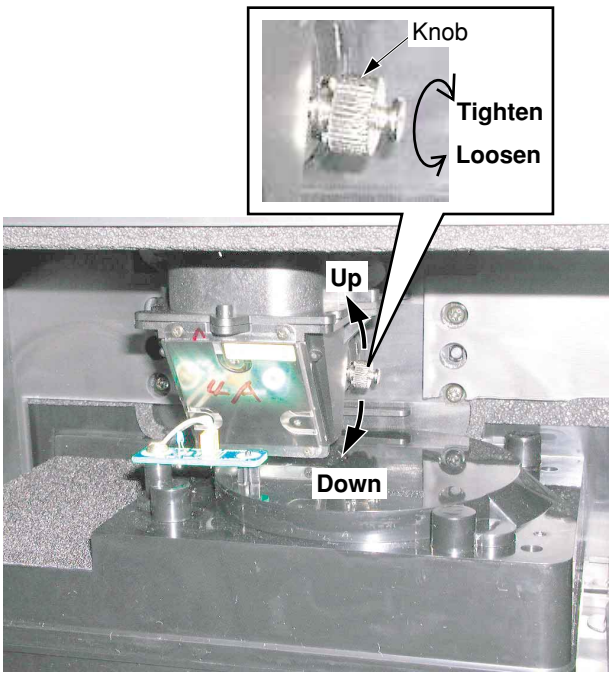
b. Focus Adjustment

1) Confirm that each of the pixels in the nine portions is clearly visible.



<Focus Screen>

2) If not, loosen the Knob on the Projection Lens until the Knob can be moved.



<Front View>

Fig. 4-7

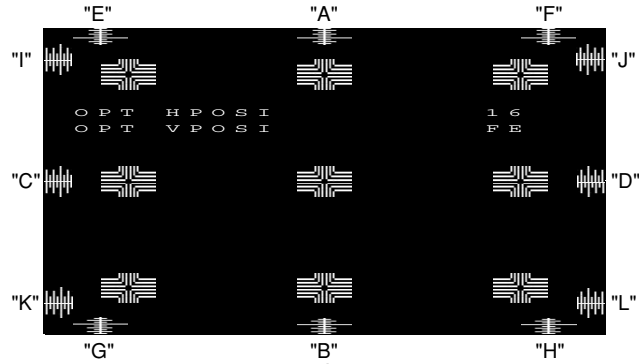
3) Adjust the Knob by moving up or down so that each of the pixels in the nine portions is clearly visible to obtain the best focus.
4) Tighten the Knob.

Note:

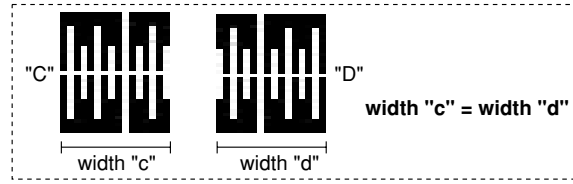
Focus Adjustment is not normally necessary. Perform this adjustment only if necessary.

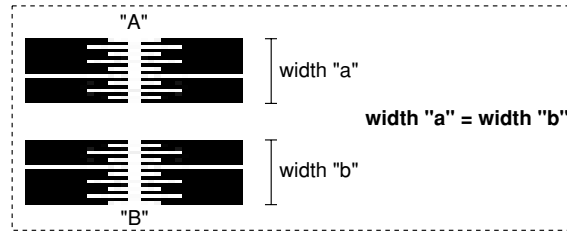
c. Electrical Picture Position Adjustment

1) Adjust OPT HPOSI so that “C” is symmetrical to “D.” by pressing the VOLUME UP/DOWN key on the remote to change the value.
2) Press the CH UP/DOWN key on the remote to return to the OTHER menu.
3) Select OPT VPOSI by pressing CH UP/DOWN key on the remote.
4) Adjust OPT VPOSI so that “A” is symmetrical to “B” by pressing the VOLUME UP/DOWN key on the remote to change the value.



<Focus Screen>





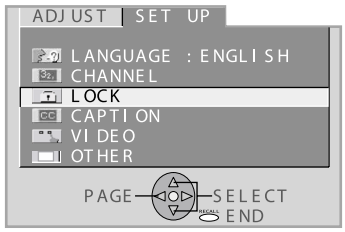
5) Confirm that all “A”, “B”, “C”, “D”, “E”, “F”, “G”, “H”, “I”, “J”, “K”, “L” are each almost symmetrical.
6) If not, adjust the “OPT HPOSI” and “OPT VPOSI” (repeat steps 1-6) until the picture is in the correct position.
7) Press the CH UP/DOWN key on the remote to return to the OTHER menu.

RESET USER'S MEMORY FUNCTIONS

Be sure to reset the user's memory:

- After replacing the Main C.B.A. (included in the TV/Tuner Unit)
- If the secret code of V-chip is forgotten.
- When moving the unit to a new location.

1. Turn on the power.
2. Press the ACTION key on the remote to display the MENU screen. Then, select SET UP. The SET UP menu will appear.



3. Select LOCK by pressing CH UP/DOWN key on the remote. Then, press the ACTION key. The LOCK menu will appear.

4. Press and hold the VOLUME DOWN button on the unit and the ACTION key on the remote for more than 5 seconds while this LOCK menu is displayed. When reset is finished, power shuts off automatically (the user's memory is reset).

CLOGGED AIR FILTER DETECTION

When a dirty or clogged air filter is detected, the OSD display appears for 1 minute. And then the Lamp is turned OFF. When this OSD display appears, remove the Projection Unit from rear, and clean the air filters gently on the Projection Unit.

AIR FILTER CLEANING IS RECOMMANDED AT THIS TIME. FIRST TURN THE UNIT OFF. PLEASE CALL FOR SERVICE.

UNIT WILL BE TURNED OFF AFTER 1 MINUTE.

REPLACEMENT OF LAMP

Lamp Time Reset Procedure:

Be sure to reset the Lamp time to "0" after replacing the Lamp.

1. Plug in the AC Cord, and turn on the power by pressing the POWER button.
2. Press and hold the VOLUME DOWN button on the unit and the PIP key on the remote together for over 5 seconds in power on condition.
   When the reset is finished, the display as shown in Fig. 5-1 appears and the LAMP LED goes out.

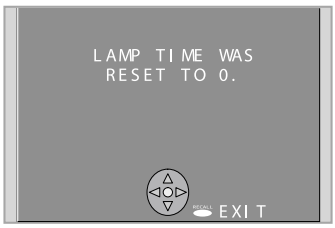


Fig. 5-1

Note:

1. If the Lamp time exceeds 10,000 hours, when turning on the power (Lamp ON), the display as shown in Fig.5-2 appears for about 5 minutes and LAMP LED lights up.

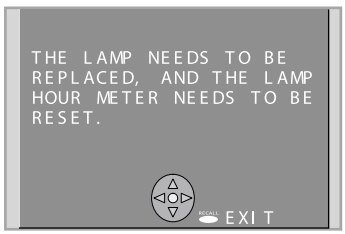


Fig. 5-2

2. Due to variation in the way each lamp is used, the lamp may need to be replaced before the maximum 10,000 hour limit is reached. These variations include the number of times and the duration the lamp is lit, prolonged use in excess of 24 hours, and any mechanical shock the bulb may accidentally experience. In situations where the use of this product is critical we recommend keeping a spare bulb on hand.

WARNING:

The high-pressure lamp may explode if not properly handled. The lamp is hot immediately after use. Touching it directly may cause burns. Please allow the lamp to cool before handling or replacing the lamp unit.

Avoid touching the glass portion of the bulb with your fingers. Natural oils from your skin can cause a "hot spot" to develop, which can cause the bulb to crack when it gets hot. In case the bulb is accidentally touched, the area should be carefully cleaned using isopropyl alcohol and a soft lint free cloth or cotton ball.

Cautions for Lamp Unit Replacement:

- Handle the removed old lamp unit carefully. If handled improperly, it may have a risk of explosion.
- Wear gloves when replacing the lamp unit.
- If replacing the lamp unit becomes necessary during the operation of the TV, follow the procedure below to turn off the power and wait until the lamp unit cools completely.

Lamp Replacement Procedure:

1. Press the POWER button on the remote to turn off the power.
2. Wait for about 1 minute until the cooling fan stops.
   Note:
   The lamp cooling fan will continue to operate for about 1 minute after the power is turned off. Do not unplug the AC Cord from the outlet until the fan has stopped. Avoid interrupting the power by using circuit breakers or switchable power strips.
3. After the cooling fan has stopped, unplug the AC Cord from the outlet.
   Note:
   Please wait more than one hour before replacing the lamp.
   [Forced cooling function]
   If you need to replace the lamp more urgently:
   - **The Projection display has a forced cooling feature. After the POWER button is turned OFF, and sometime during about the first minute of the normal cooling fan operation, press the VOLUME UP button on the unit and CH UP key on the remote at the same time for more than 5 seconds. The cooling fan will operate for about 10 minutes. (LAMP LED will flash 5 times every 5 second and POWER LED will flash red for 10 minutes.)**
4. Remove the Front Cover Unit from the latches.
5. Remove the Lamp Cover by loosening the Screw.

Fig. 5-3

6. Loosen the Screw on the Lamp. Then, pull the Lamp.
   Note:
   Because the Lamp may still be hot, use caution when handling.

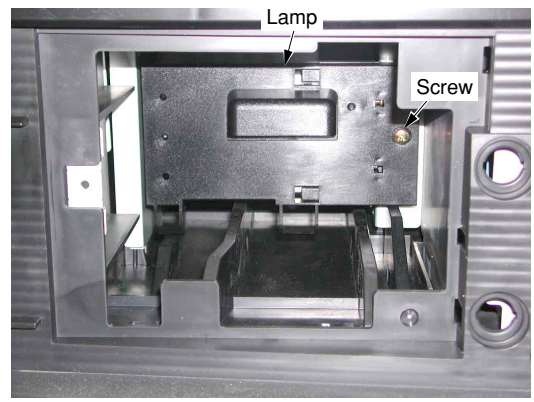


Fig. 5-4

7. Install the new Lamp, and tighten the Screw.
8. Install the Lamp Cover securely, and tighten the Screw.
9. Install the Front Cover Unit.

Note:

After replacing the Lamp, use caution to reset the Lamp time.

CLEANING METHOD

THE SCREEN UNIT AND THE MIRROR

•THE SCREEN UNIT (Lenticular Screen, Fresnel Lens)

The Lenticular Screen surface should be wiped gently with a clean, soft, dry cloth. If the dirt cannot be removed by wiping with a dry cloth, lens cleaner can be used. Wipe evenly so as not to leave any streaks.

Note:

Do not use cleaning materials containing methyl alcohol, acetone, or dichloromethane.

Wipe the surface of the Fresnel Lens with a clean, soft, dry cloth.

•THE MIRROR

Remove any dirt with a compressed air blower or wipe with a clean, soft, dry cloth. If wiped too forcefully, the surface of the Mirror can be damaged. If wiping with a clean, dry cloth does not remove the dirt, the Mirror must be replaced.

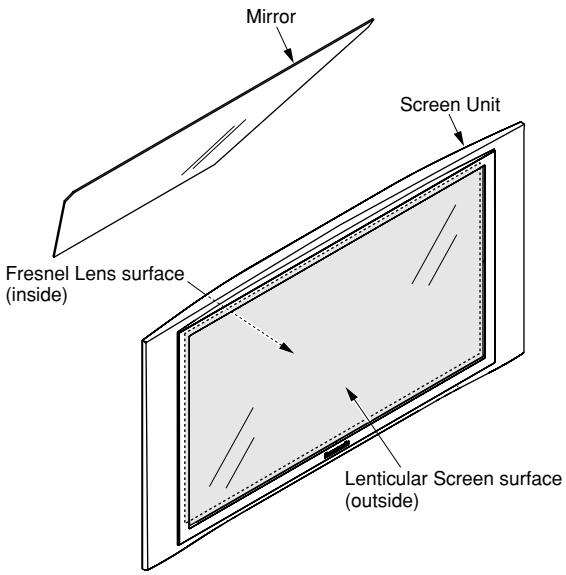


Fig. 6-1

THE LAMP

Gently wipe the surface of the glass of the Lamp with cleaning paper or soft cloth.

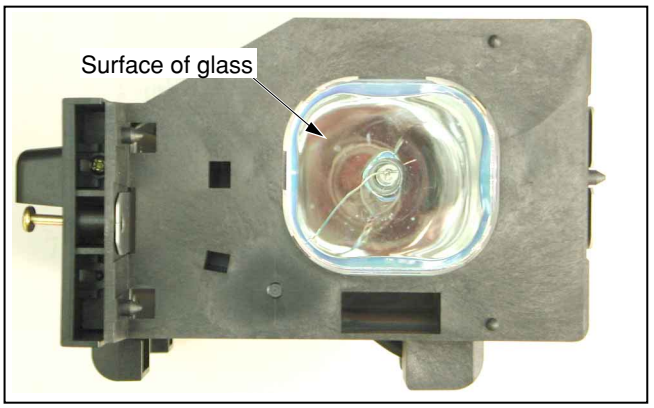


Fig. 6-2

THE FILTER ON THE PROJECTION UNIT

CAUTION:

Operating with torn or damaged Air Filter may cause damage to the Projection unit.

Remove the Projection Unit from rear. Then, clean the filters on the Projection Unit. Gently remove any accumulated dust from filter with a vacuum cleaner.

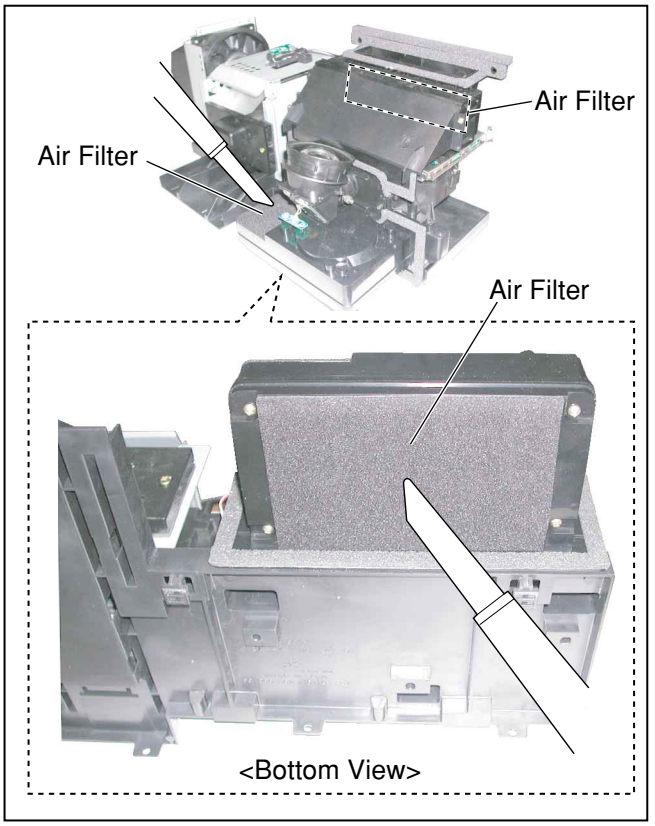


Fig. 6-3

THE PROJECTION LENS

Use lens cleaning paper and cleaner available at your local camera shop, etc. Dampen the cleaning paper with cleaner and gently wipe the surface of the lens from the center outward to remove dust.

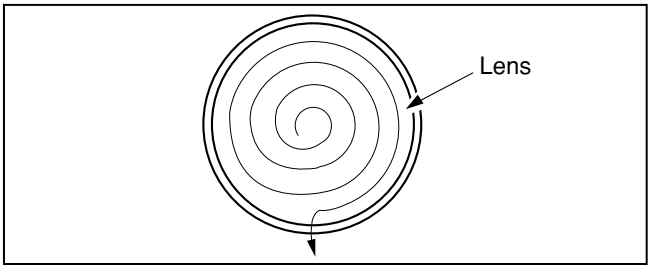


Fig. 6-4

THE POLARIZER UNIT, THE FIELD LENS, THE RELAY LENS, THE CONDENSER LENS, THE DICHROIC MIRROR, THE FULL MIRRORS, THE INTEGRATOR AND THE P/S CONVERTER

Make sure that no dust gets on the optical components such as the Polarizer Unit, the Field Lens, the Relay Lens, the Condenser Lens, the Dichroic Mirror, the Full Mirrors, the Integrator and the P/S Converter. Clean these optical components with cleaning paper moistened with lens cleaner if necessary.

TO DISTINGUISH THE PROJECTION LENS UNIT OR THE PROJECTION UNIT

The only difference between the 50 inch model and the 60 inch model of the Projection Unit is the Projection Lens. To distinguish, see label on the Projection Lens.

50 inch model as shown

<Front View>

LSDL0225 with white label: for 50 inch model
LSDL0248 with Yellowish green label: for 60 inch model

Fig. 7

Note:
LSDL0225 and LSDL0248 are not the part numbers of the Projection Lens as a replacement part.

DO NOT UNPLUG AC CORD DURING COOLING OPERATION

The lamp cooling fan will continue to operate for approximately 1 minute after the power is turned off.
At the same time, the POWER LED will flash red.
Do not disconnect the AC Cord from the power outlet and do not open any circuit breakers while the cooling fan is still operating.

HOT CIRCUIT

Primary circuit exists on the Audio Amp C.B.A., the Ballast C.B.A. and the Power C.B.A.
This circuit is identified as "**HOT**" on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

WIRE AND LEAD POSITION DIAGRAM OF THE UNIT

After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

Note: Use extreme care especially for the following.

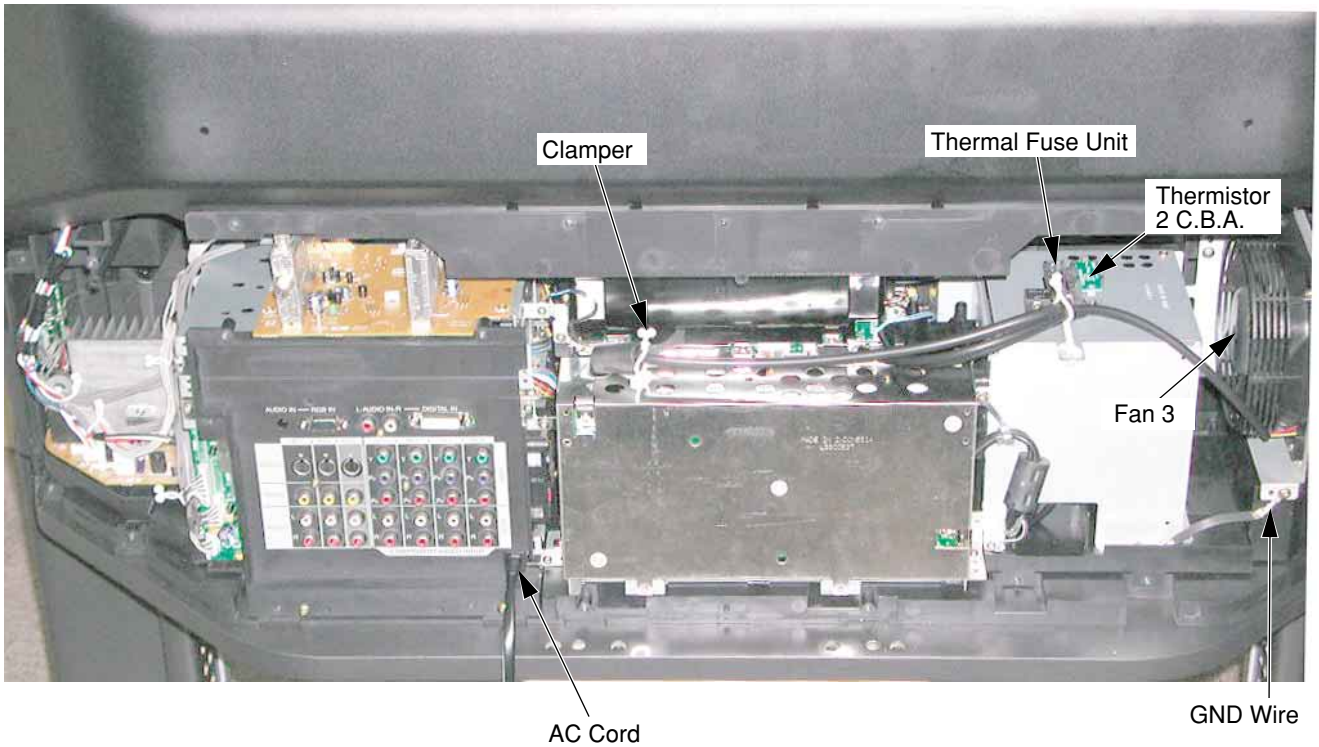


Fig. 9-1

After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

Note: Use extreme care especially for the following.

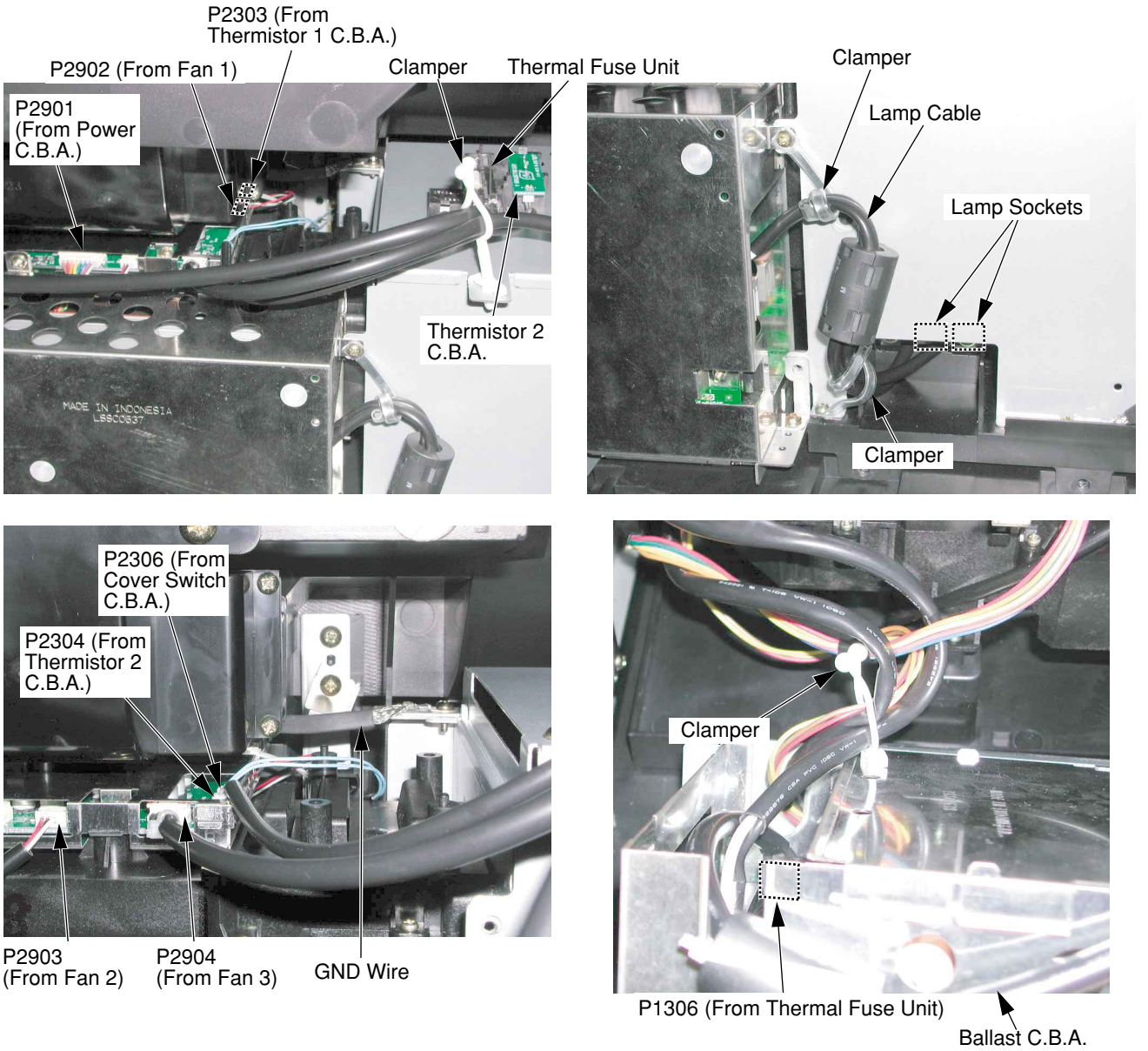


Fig. 9-2

After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

Note: Use extreme care especially for the following.

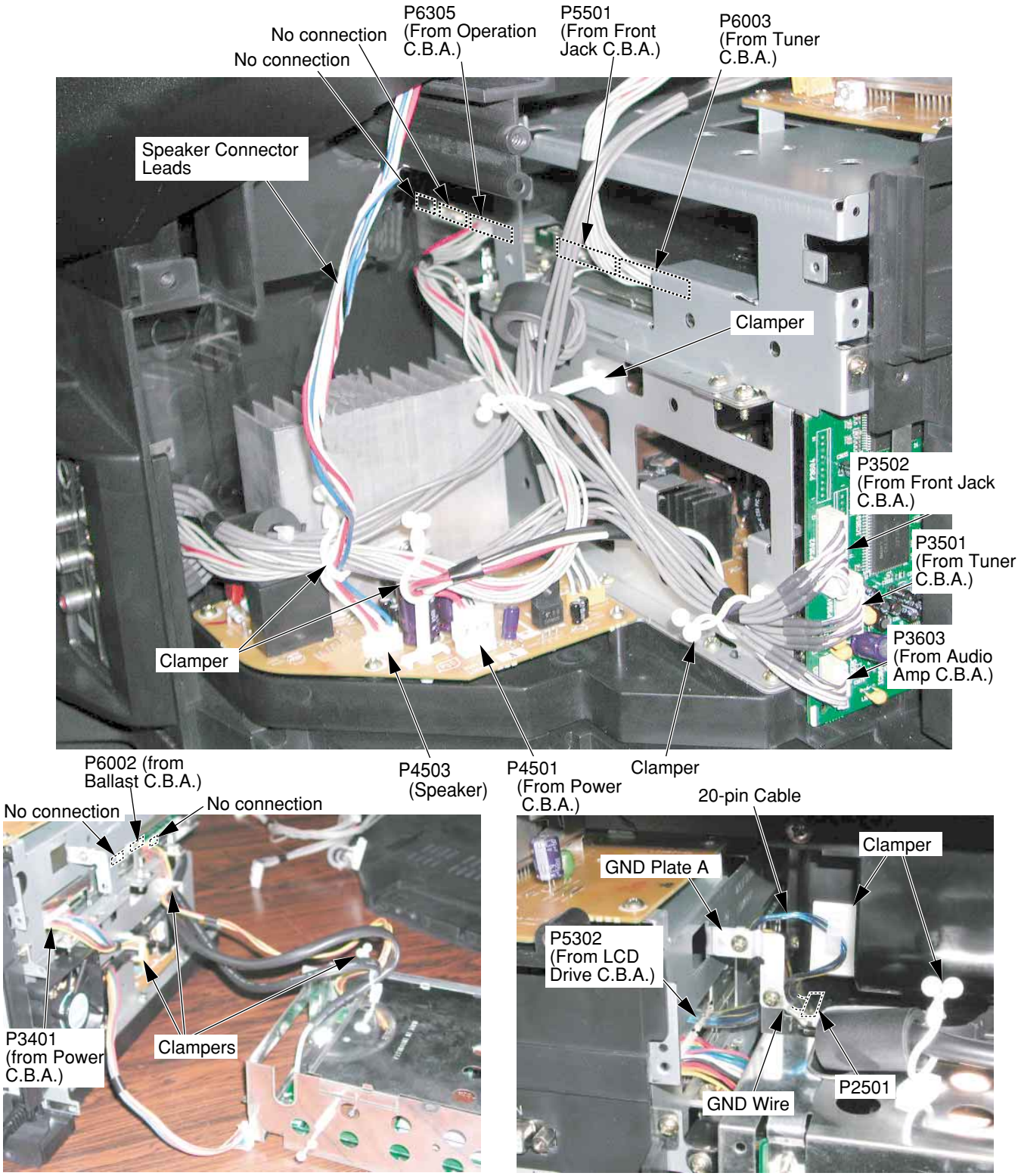


Fig. 9-3

After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

Note: Use extreme care especially for the following.

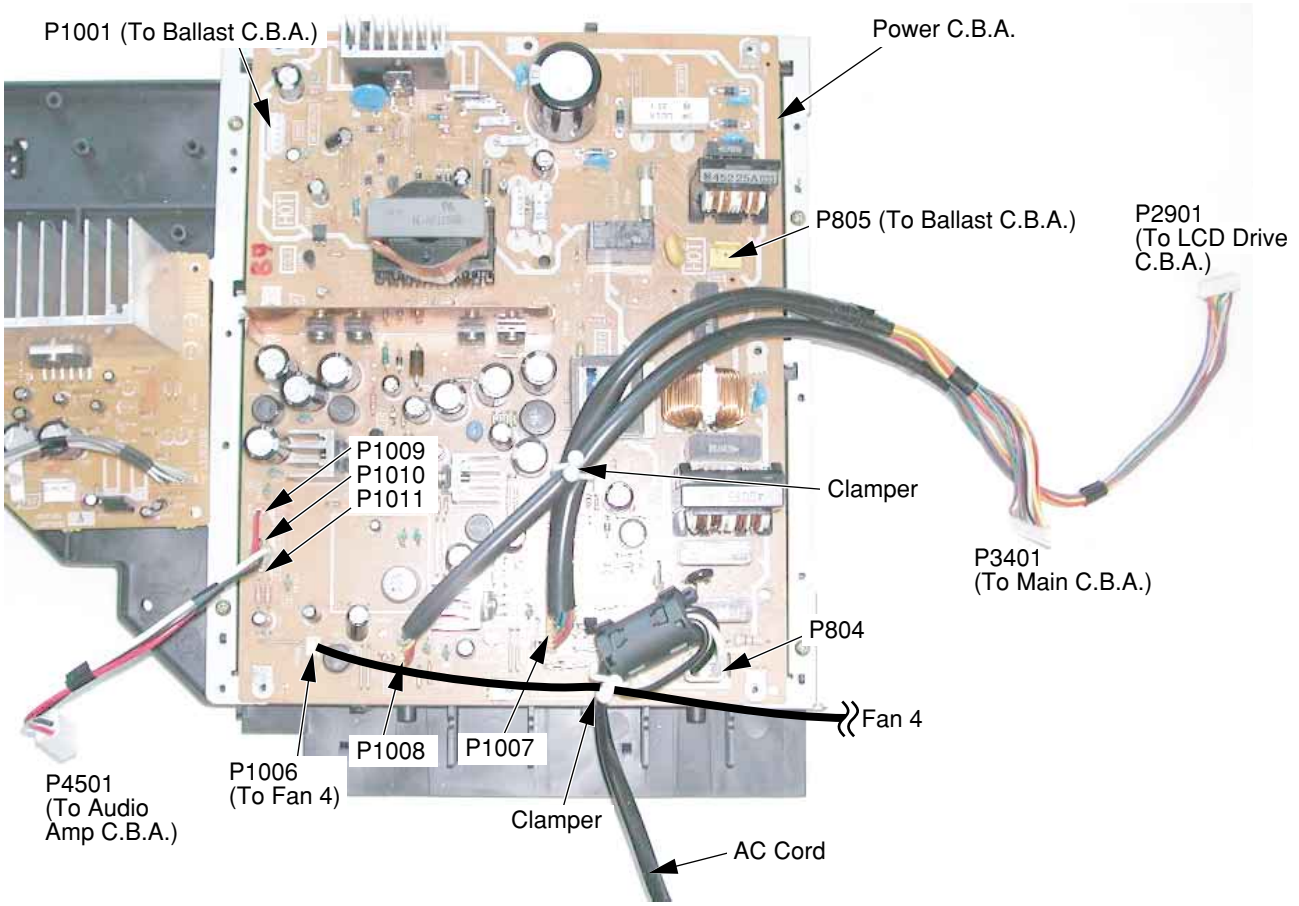


Fig. 9-4

CABINET SECTION

DISASSEMBLY METHOD OF CABINET SECTION

Cabinet section contains following removal procedures:

REMOVAL OF THE BALLAST C.B.A. AND THE TV/TUNER UNIT FROM THE CABINET

REMOVAL OF THE PROJECTION UNIT FROM THE CABINET

REMOVAL OF THE TUNER C.B.A., THE MAIN C.B.A., THE REAR JACK C.B.A., THE AUDIO AMP C.B.A., THE POWER C.B.A. FROM THE TV/TUNER UNIT

REMOVAL OF THE SCREEN UNIT AND THE SPEAKER FROM THE DISPLAY

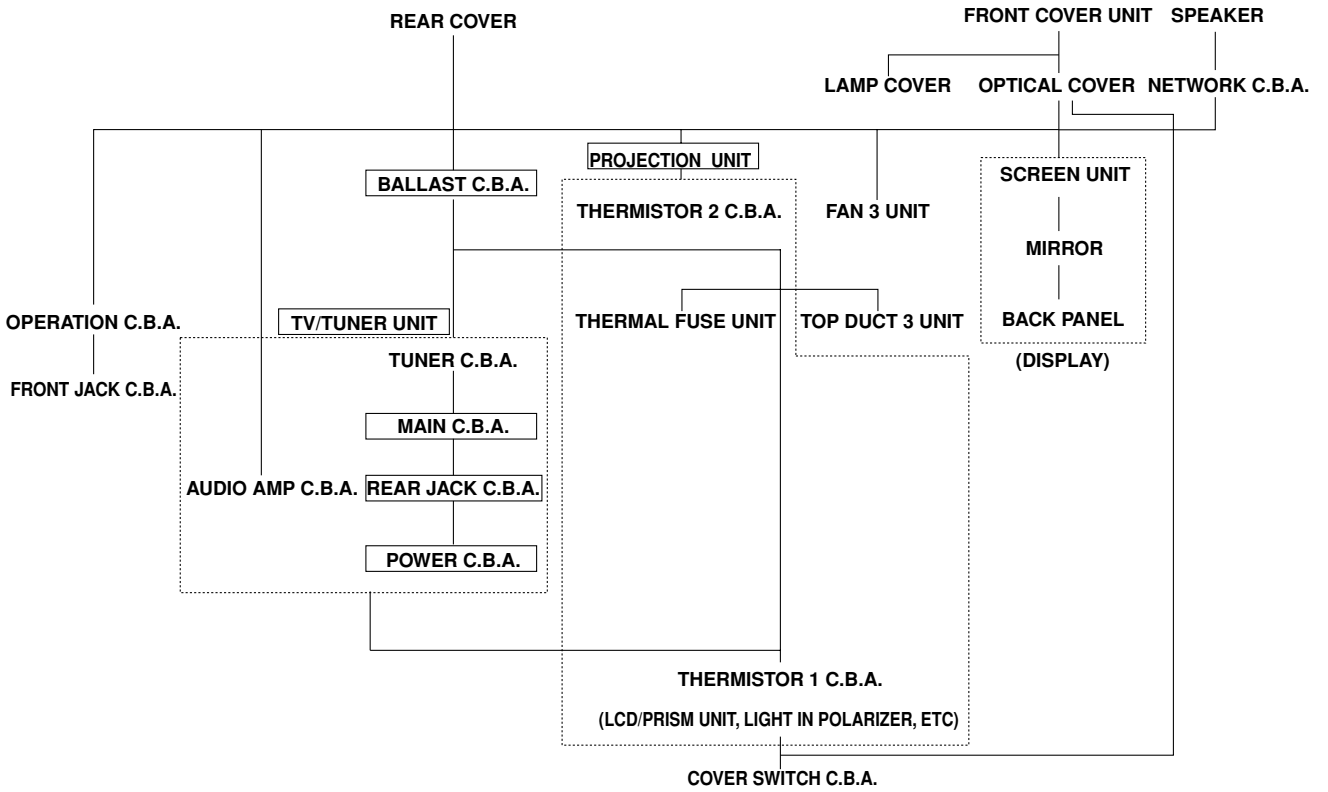
REMOVAL OF THE MIRROR FROM THE BACK COVER

REMOVAL OF THE FRONT JACK C.B.A. AND THE OPERATION C.B.A. FROM THE CABINET

REMOVAL OF THE COVER SWITCH C.B.A. FROM THE CABINET

DISASSEMBLY FLOWCHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C.Boards in order to gain access to item (s) to be serviced. When reassembling, perform the step (s) in the reverse order. Bend, route and dress the wires as they were originally.



Note :

a. Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.
b. When reinstalling, ensure that the connectors are connected and electrical components have not been damaged.
c. Do not supply power to the unit during disassembly and reassembly.

REMOVAL OF THE BALLAST C.B.A. AND THE TV/TUNER UNIT FROM THE CABINET

1. Remove the Rear Cover by removing the 18 Screws (401).

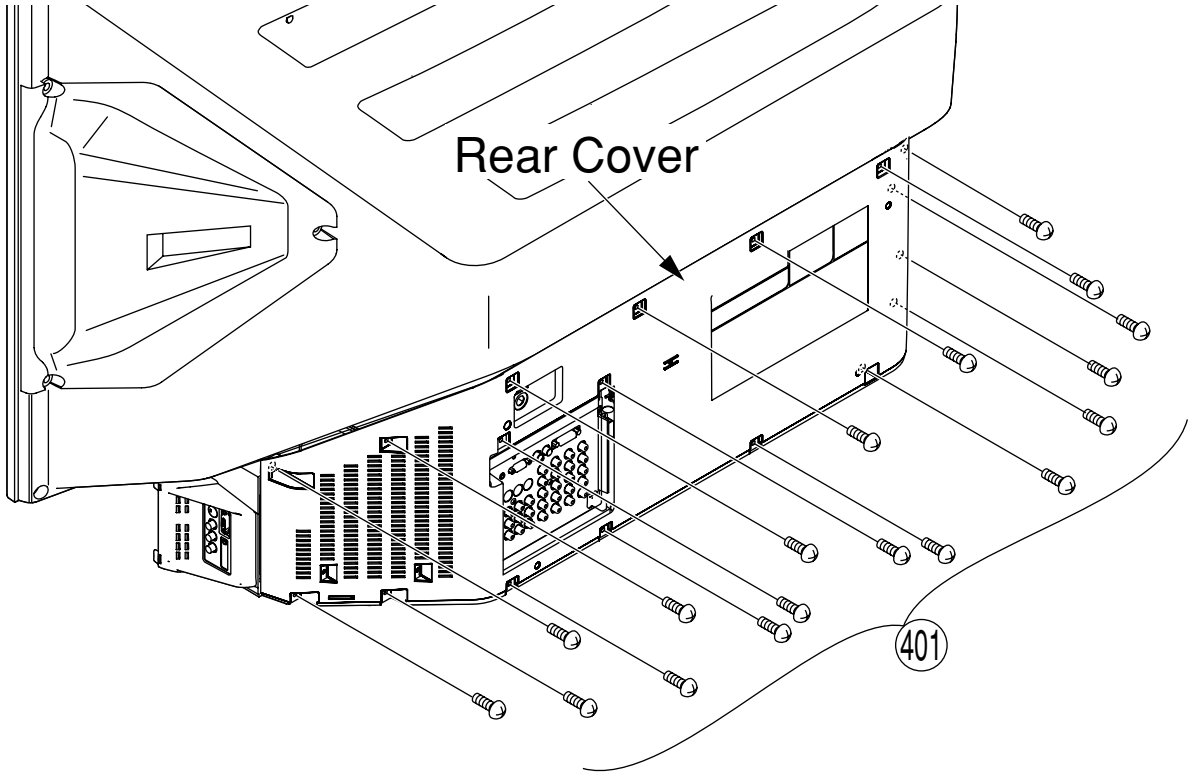


Fig. D1-1

2. Remove the Rear Support Plate by removing the 4 Screws (401, 452).

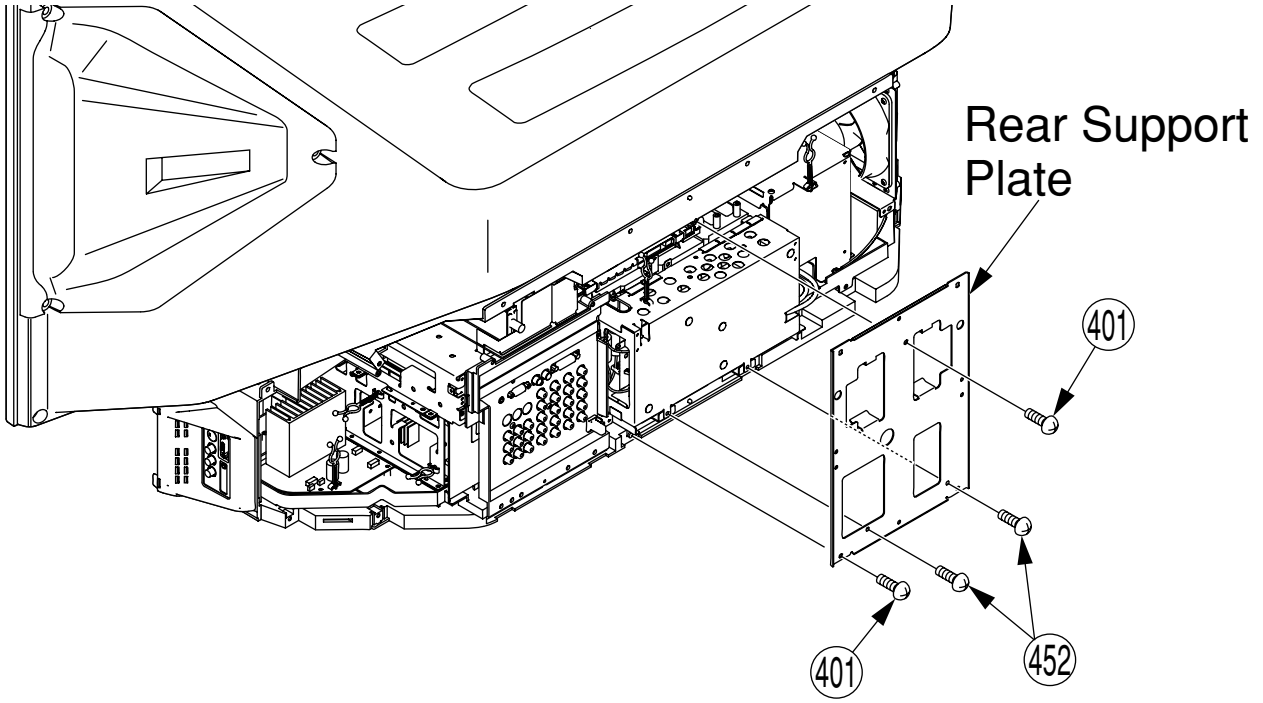


Fig. D1-2

3. 1) Remove the 5 Screws (402) and remove Clamper-1.
   2) Remove the 2 Screws (451) on the Lamp Socket.
   3) Disconnect the Lamp Connector while releasing it from Clamper-2.
   4) Avoiding the Ballast C.B.A., disconnect Connector P1306 (Thermal Fuse Unit) inside of the Ballast C.B.A.
   5) Remove the Clamper from the Ballast C.B.A.

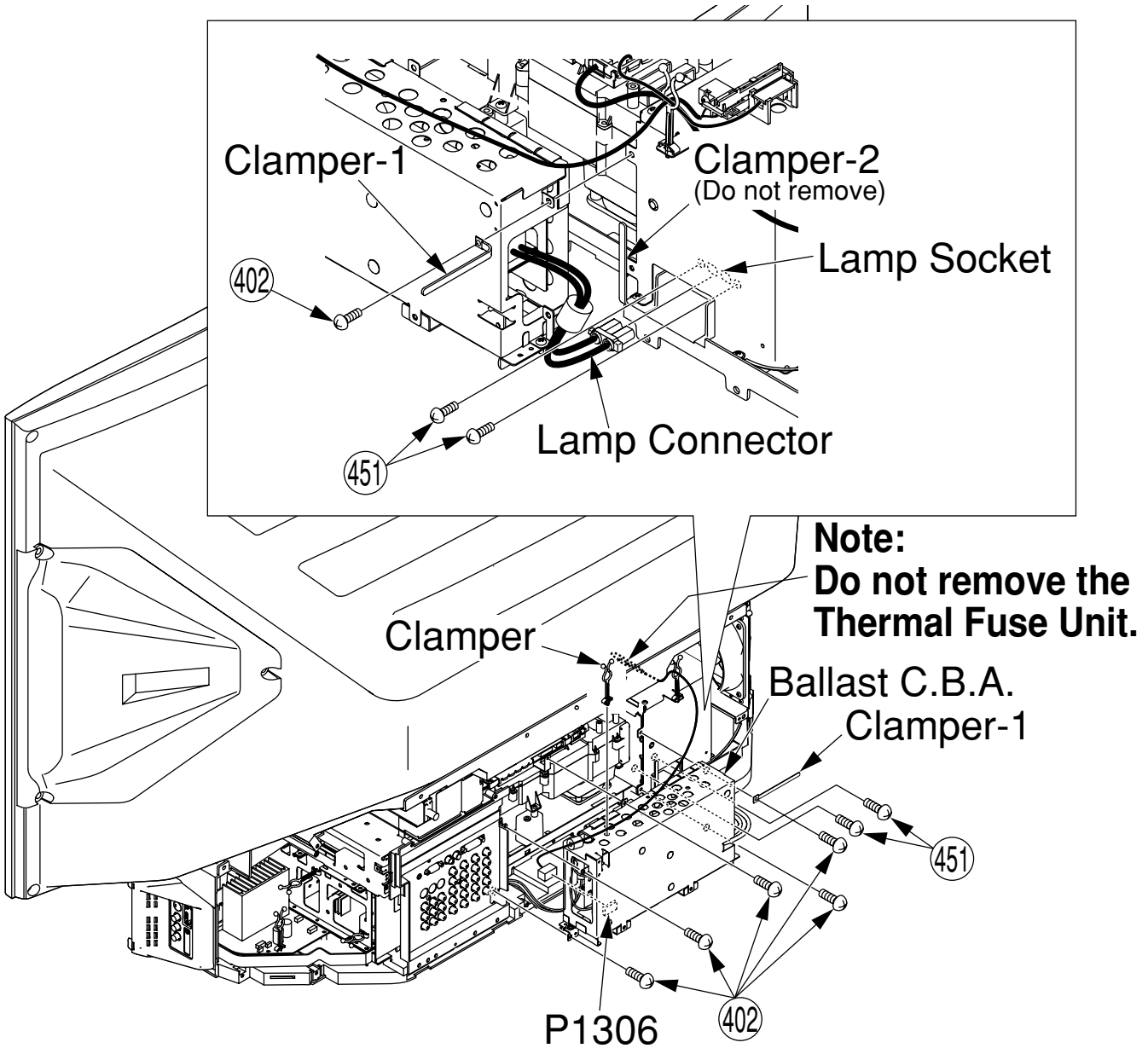


Fig. D1-3

Replacement Note of Ballast C.B.A.:
These parts will be necessary when replacing the Ballast C.B.A. Set aside, and keep and re-use.
- The Clamper on Ballast C.B.A.
- The Thermal Fuse Unit

4. 1) Disconnect Connectors P3502, P5501, P4503, P6305 and release them from the clampers.
   2) Remove the Screw (452) on the GND Wire.
   3) Remove the Screw (401) on the TV/Tuner Ass'y.
   4) Lift up and slide the TV/Tuner Ass'y slightly by releasing the 7 Guide Tabs.
   CAUTION: Do not slide the TV/Tuner Ass'y too much or the 20-pin Cable may be damaged.

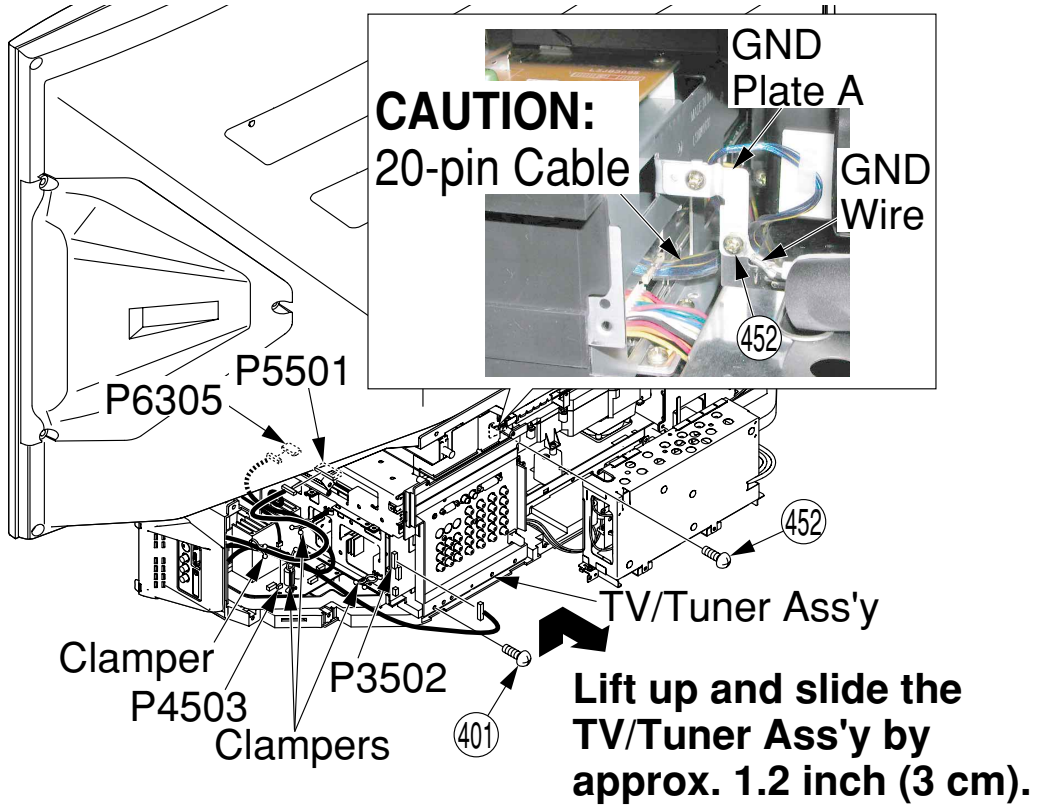
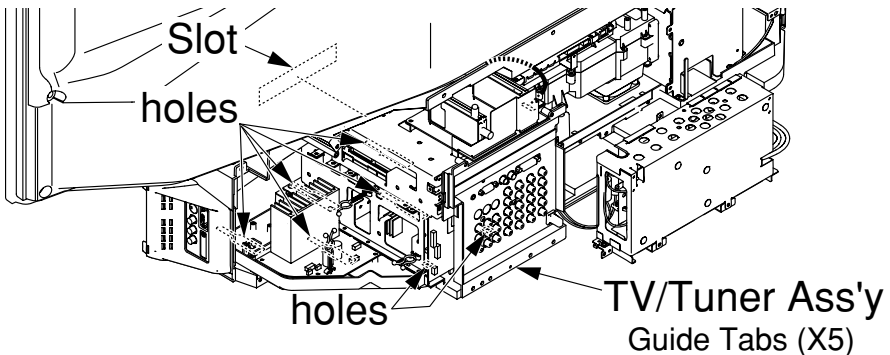
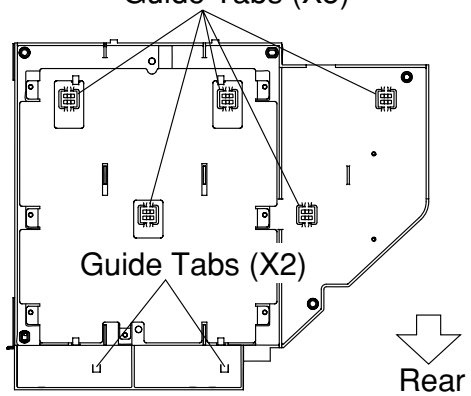


Fig. D1-4



CAUTION:
Lift up and slide the TV/Tuner Ass'y by approx. 1.2 inch (3 cm) to remove the 20-pin Cable. Forced sliding will cause 20-pin Cable to be damaged.



<Bottom View of TV/Tuner Ass'y>

Fig. D1-5

5. 1) Disconnect Connector P2901 and release them from the clamper.
   2) Disconnect Connector P5302 (20-pin Cable) and release it from the clamper.
   CAUTION: Take extreme care not to damage the 20-pin Cable when disconnecting.

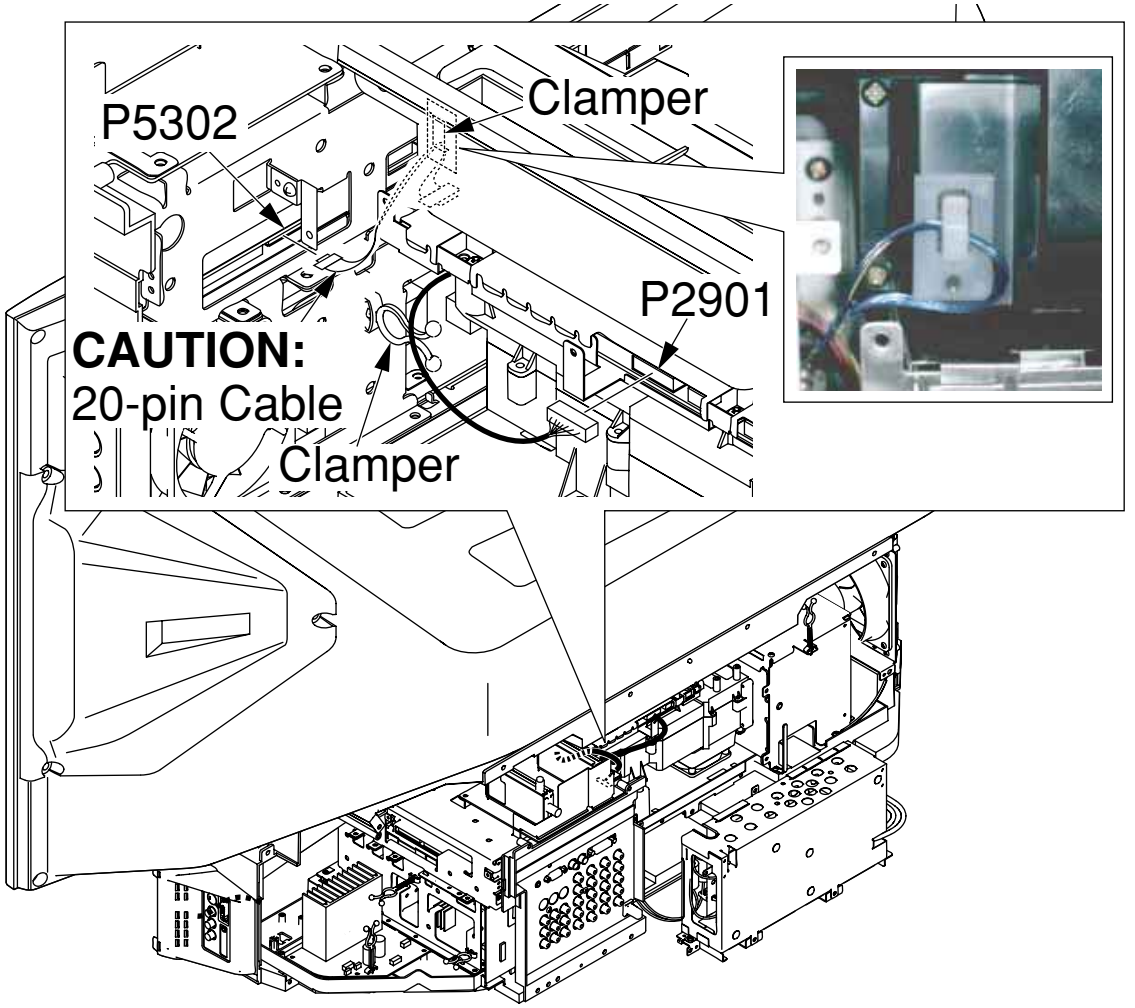


Fig. D1-6

6. 1) Pull off the TV/Tuner Ass'y with the Ballast C.B.A. while taking care with the cables.
   2) Remove the GND Plate A from the TV/Tuner Unit by removing the Screw (452).
   3) Remove the SD Door Unit from the TV/Tuner Unit by releasing the 2 Locking Tabs.

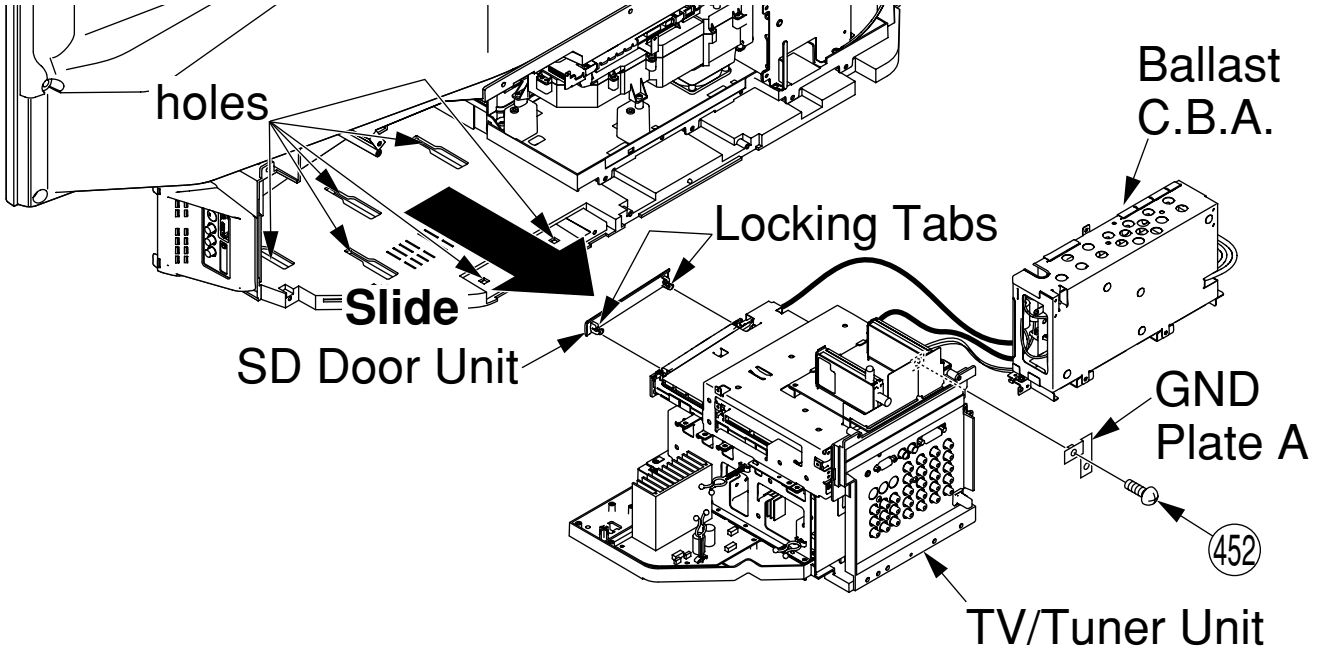


Fig. D1-7-1

Reassembly Note: When installing the SD Door Unit, install the SD Door Unit with the 2 Locking Tabs from the front of the cabinet after installing the TV/Tuner Unit into the cabinet.

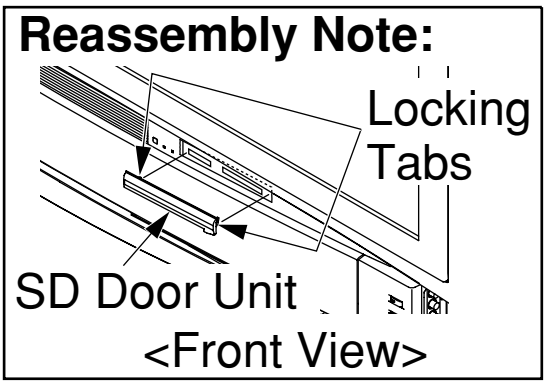


Fig. D1-7-2

Replacement Note of TV/Tuner Unit:
These parts will be necessary when replacing the TV/Tuner Unit. Set aside, and keep and re-use.
- The GND Plate A
- The SD Door Unit

7. 1) Disconnect Connectors P6002, P805, P1001 and release them from the clampers.
   2) Then, remove the Ballast C.B.A.

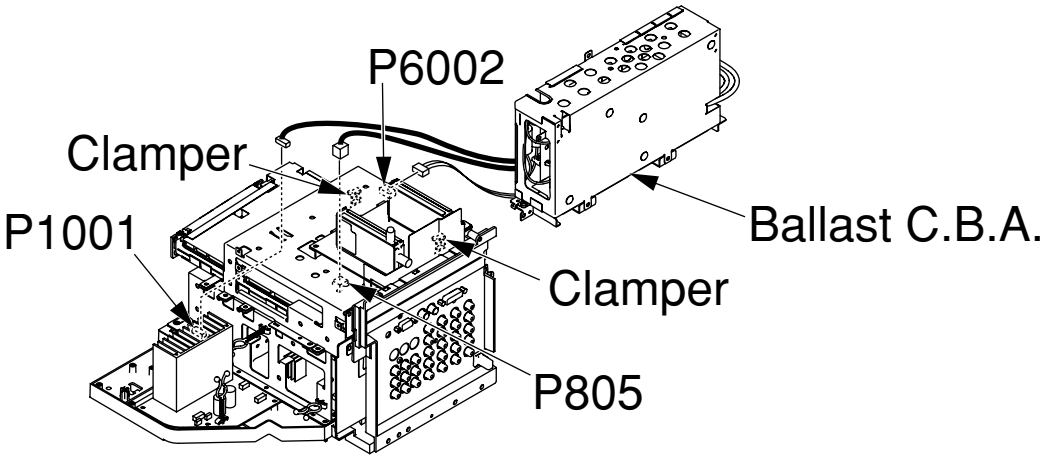
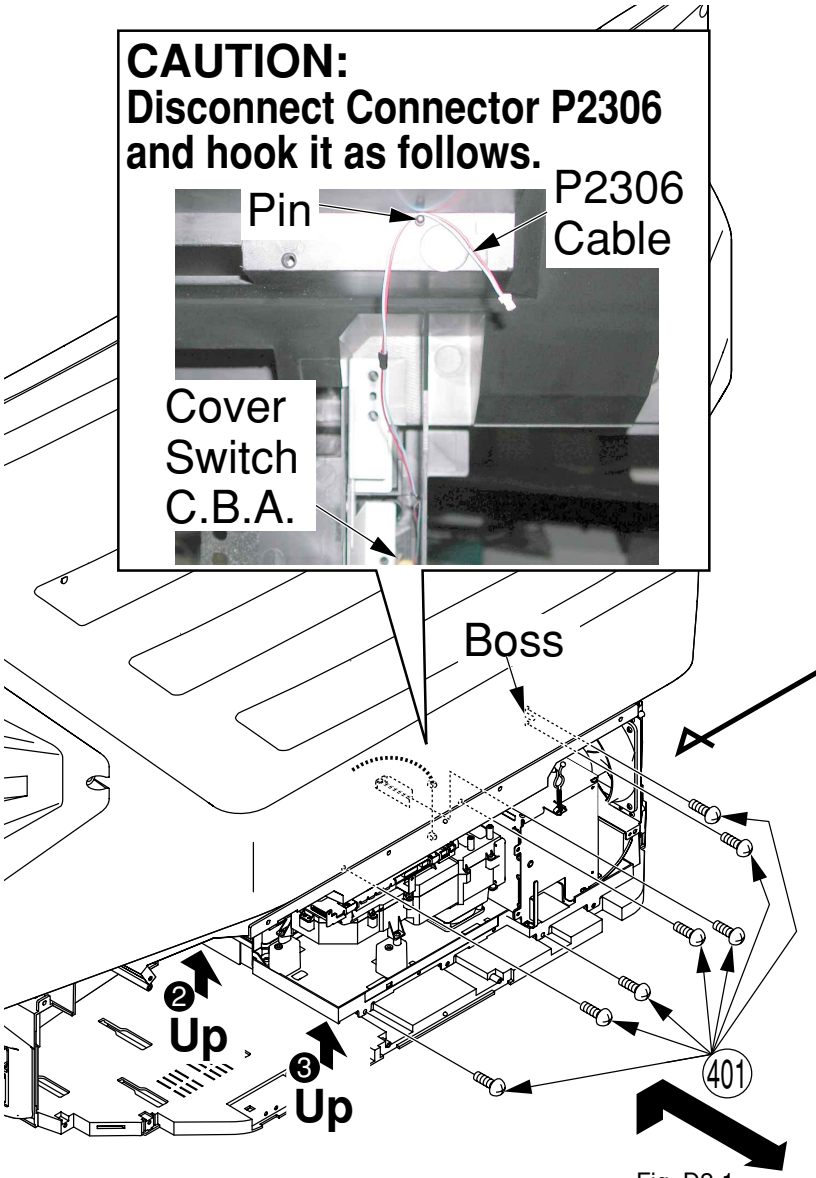


Fig. D1-8

REMOVAL OF THE PROJECTION UNIT FROM THE CABINET

1. Remove the Ballast C.B.A. and the TV/Tuner Unit. Refer to Steps 1~6 in “REMOVAL OF THE BALLAST C.B.A. AND THE TV/TUNER UNIT FROM THE CABINET.”
2. 1) Disconnect Connector P2306. Then, hook the P2306 cable to the pin.
   2) Remove the 7 Screws (401) on the Projection Unit.
   3) Lift up and slide the Projection Unit by releasing the 5 Guide Tabs.
   Tips on removal of the Projection Unit:
   First, slide the Projection Unit to the rear (approx. 1.5 inch (4 cm)). Then, lift up the front and the rear portions of the Projection Unit by both hand to release the Guide Tabs. Then, slide out the Projection Unit.
   Or, remove the Fan 3 Unit from the Projection Unit at first. Refer to Fig. D2-3.



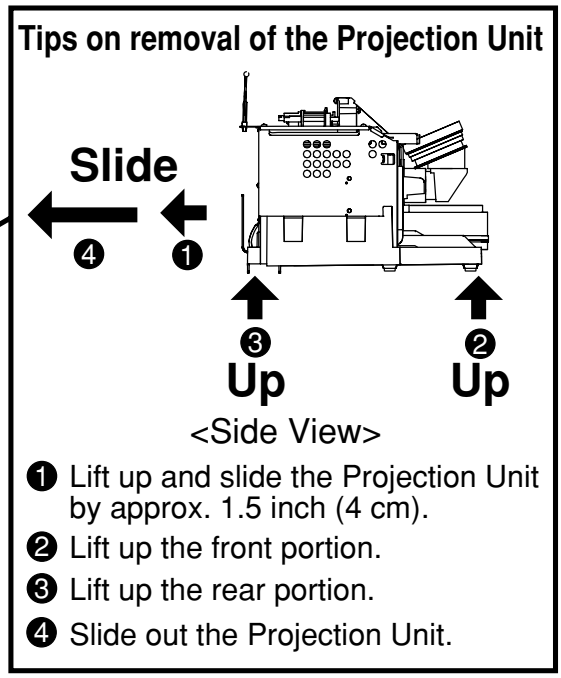


Fig. D2-1

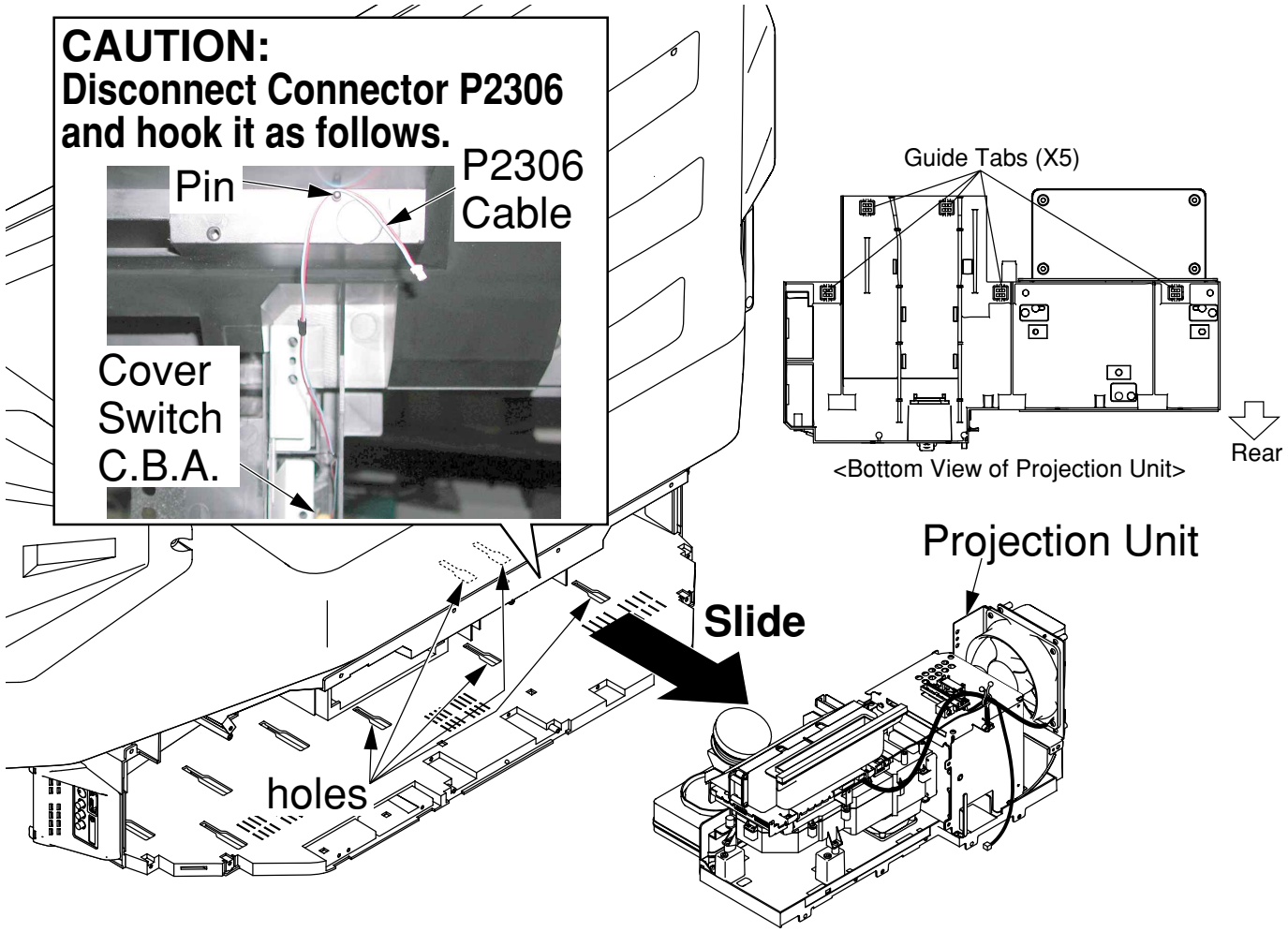


Fig. D2-2

Reassembly Note:
Before installing the Projection Unit, confirm that the P2306 cable is hooked to the pin. Then, install the Projection Unit to the cabinet.

3. 1) Disconnect Connector P2501 (20-pin Cable), and release it from the clamper.
   2) Disconnect Connector P2904, and remove the Fan 3 Unit by removing the 2 Screw (402).
   3) Remove the Top Duct 3 Unit by removing the 4 Screws (421) and release it from the clamper.

   CAUTION:
   When removing the Screws (421) on the Top Duct 3 Unit, plastic dust may be produced. Therefore, confirm that there is no dust on the Top Duct 3 Unit. If there is dust, clean the Top Duct 3 Unit with a brush, etc. Otherwise, dust may adhere to the inside of the screen.
   4) Remove the Lamp from the Projection Unit by loosening the Screw.

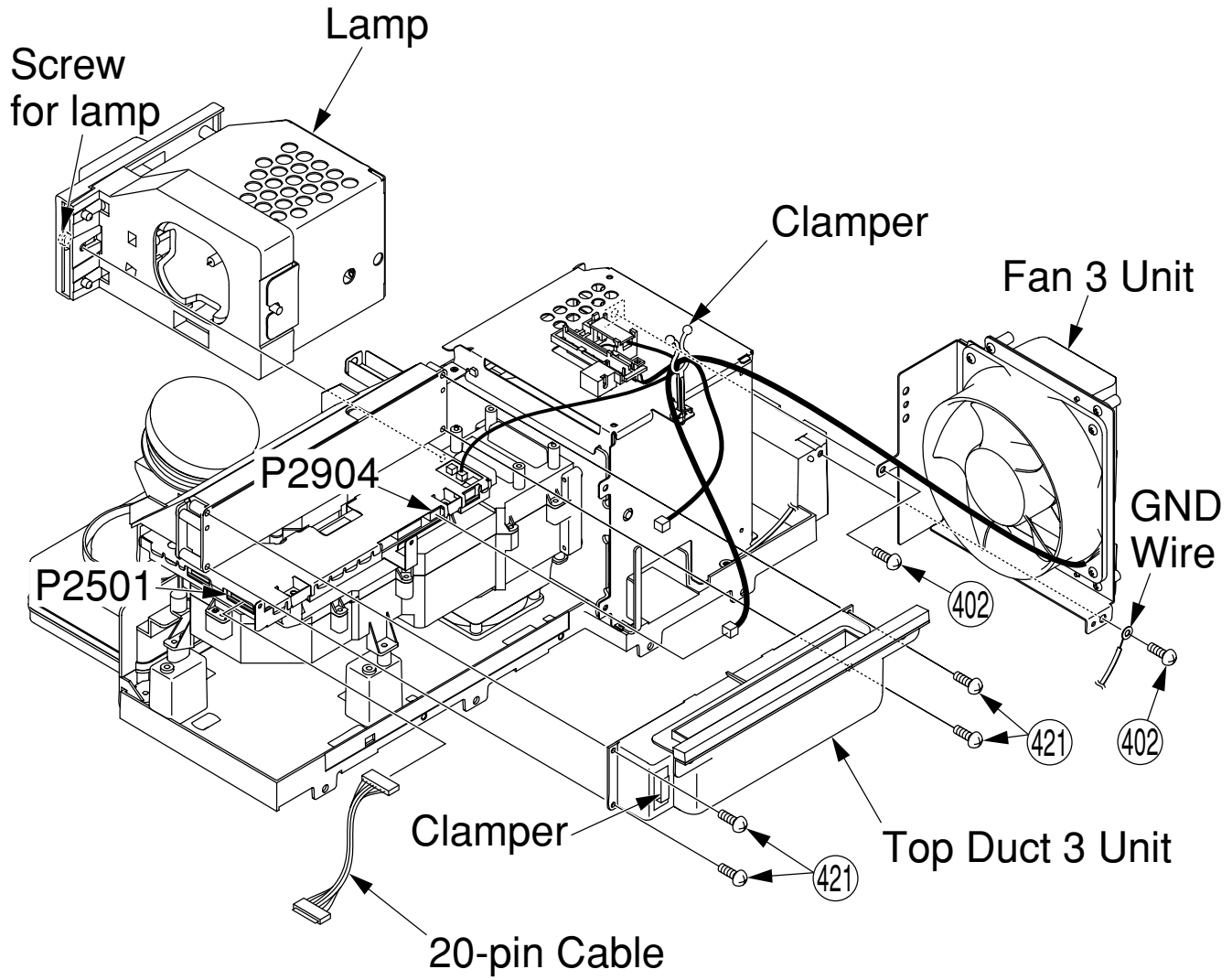


Fig. D2-3

Replacement Note of Projection Unit:
These parts will be necessary when replacing the Projection Unit. Set aside, and keep and re-use.
- Fan 3 Unit
- Top Duct 3 Unit
- 20-pin Cable

CAUTION:
When replacing the Projection Unit;
1. Be sure to install the original Lamp, the Fan 3 Unit, the Top Duct 3 Unit, the 20-pin Cable into the new Projection Unit as the replacement.
2. The following ADJUSTMENT of the Projection Unit must be performed.
   a. Mechanical Picture Position Adjustment
   b. Focus Adjustment
      Note:
      Perform this adjustment only if necessary. (Normally, it will not be necessary.)
   c. Electrical Picture Position Adjustment

Refer to “WHEN REINSTALLING THE PROJECTION UNIT INTO THE UNIT AT THE USER’S LOCATION” in SERVICE NOTES.

REMOVAL OF THE TUNER C.B.A., THE MAIN C.B.A., THE REAR JACK C.B.A., THE AUDIO AMP C.B.A., THE POWER C.B.A. FROM THE TV/TUNER UNIT

CAUTION:

1. **Be sure to make a note of the CURRENT LAMP value (value A) in Service Mode (1/3):**
   LAMP OPERATION TIME is stored in EEPROM on the Main C.B.A. Therefore, before removing the Main C.B.A. or the TV/Tuner Unit at the user's location, make a note of the CURRENT LAMP value (value A) in Service Mode (1/3).
   Then, after installing the new Main C.B.A. or the TV/Tuner Unit at the user's location, set the CURRENT LAMP value to the original value (value A) in Service Mode.
   Otherwise, OSD and LED Lamp replacement indications will be displayed at the wrong time.

Note:
In case it is impossible to make a note of the CURRENT LAMP value because of a defective Main C.B.A., ask the customer their daily average use and the approximate age of the current Lamp. Then, calculate the CURRENT LAMP value as follows and make a note.

Daily average use (hours)	X	Approx. age (days)	=	**CURRENT LAMP** (hours)

1. Remove the TV/Tuner Unit and the Ballast C.B.A. Refer to Steps 1~7 in "REMOVAL OF THE BALLAST C.B.A. AND THE TV/TUNER UNIT FROM THE CABINET."
2. 1) Disconnect Connectors P6003, P3501 and release from the clampers.
   2) Remove the Tuner C.B.A. and the Tuner Shield Plate by removing the 4 Screws (402).

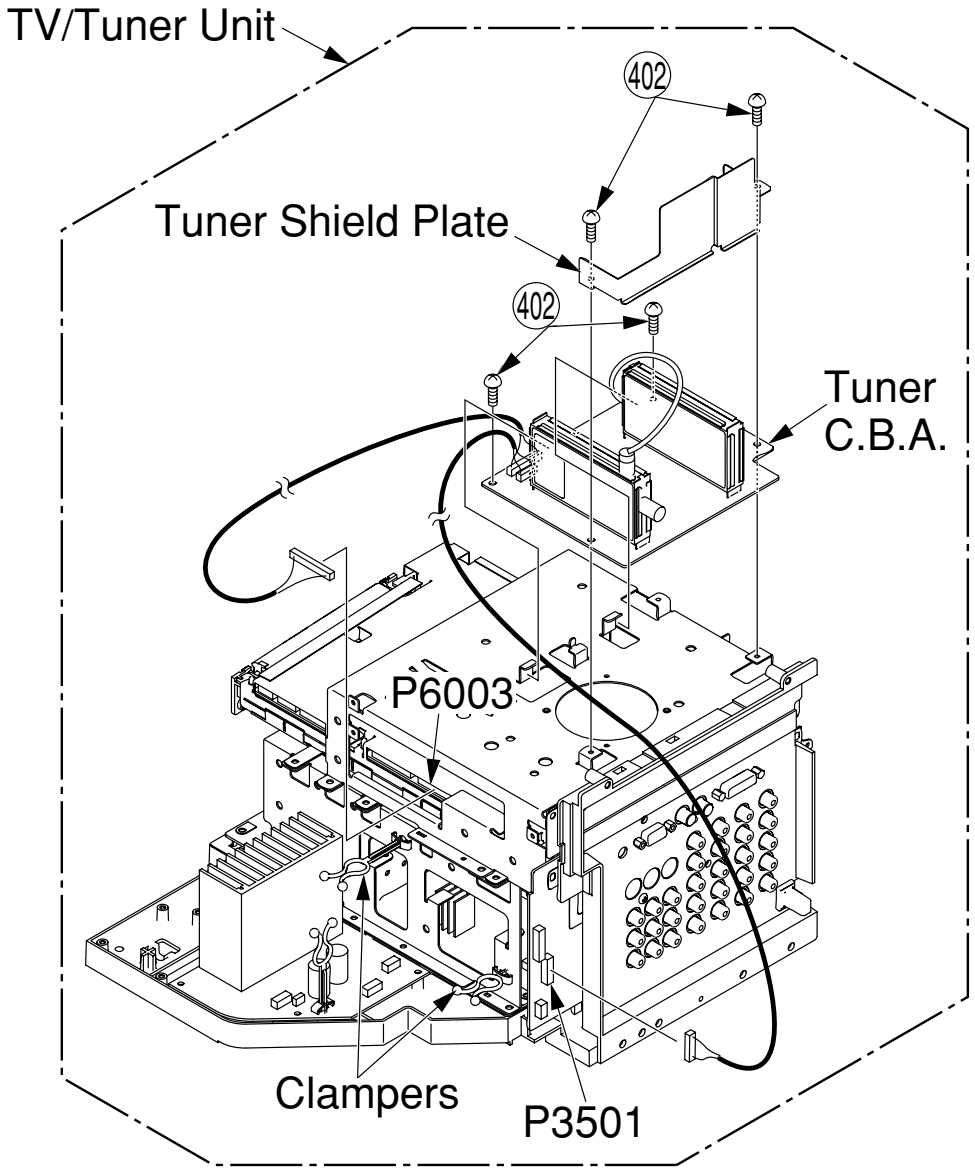


Fig. D3-1

3. 1) Disconnect Connector P3401 and release from the clamper.
   2) Remove the Tuner P.C.B. Frame by removing the 6 Screws (402).
   3) Release the AC Cord from the slot of the Rear Jack Holder.
   4) Remove the Rear Jack Holder by removing the 3 Screws (402).

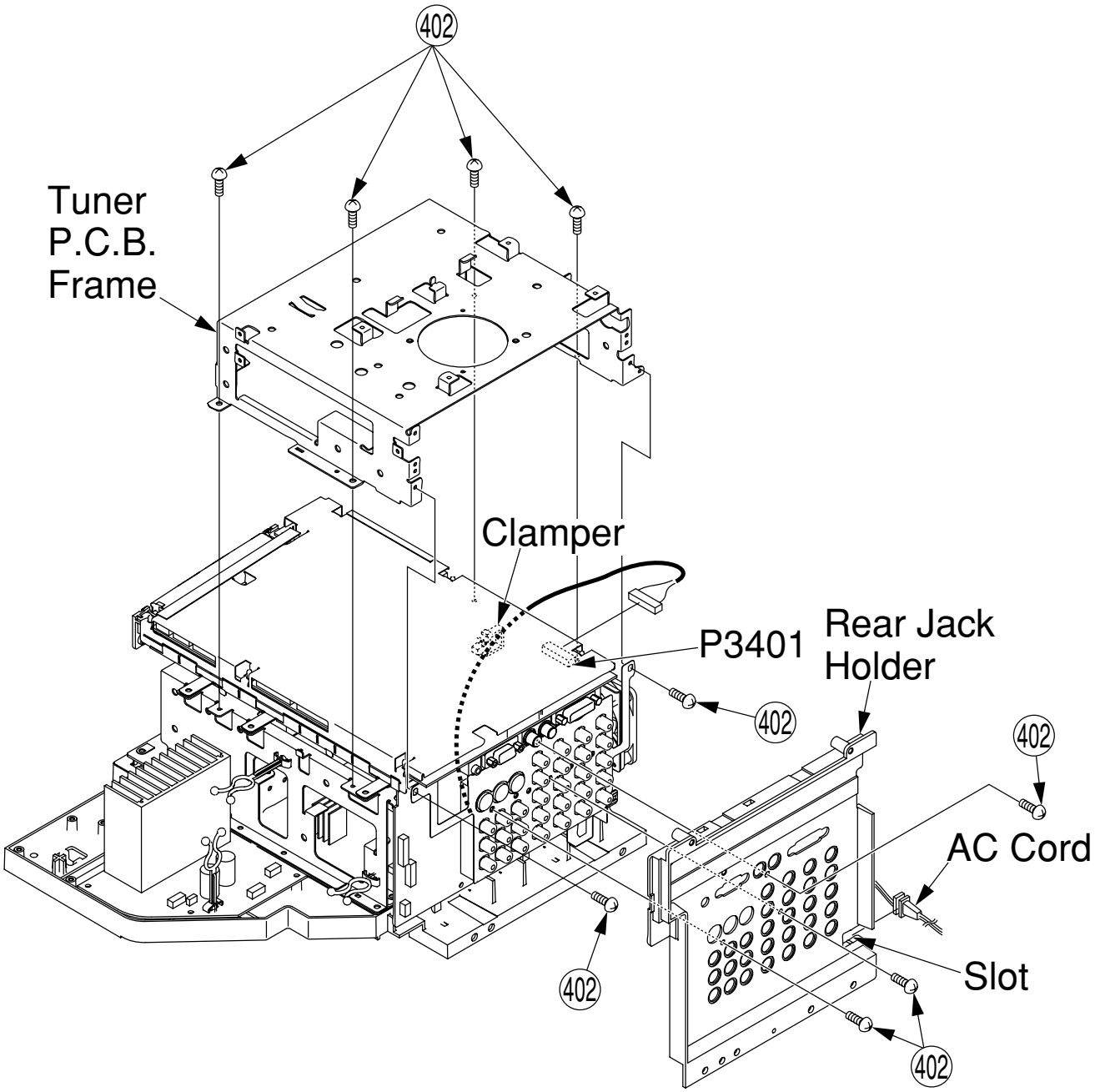


Fig. D3-2

4. Remove the Main C.B.A. by removing the 6 Screws (402) and disconnecting Connector P3403 and P3404.

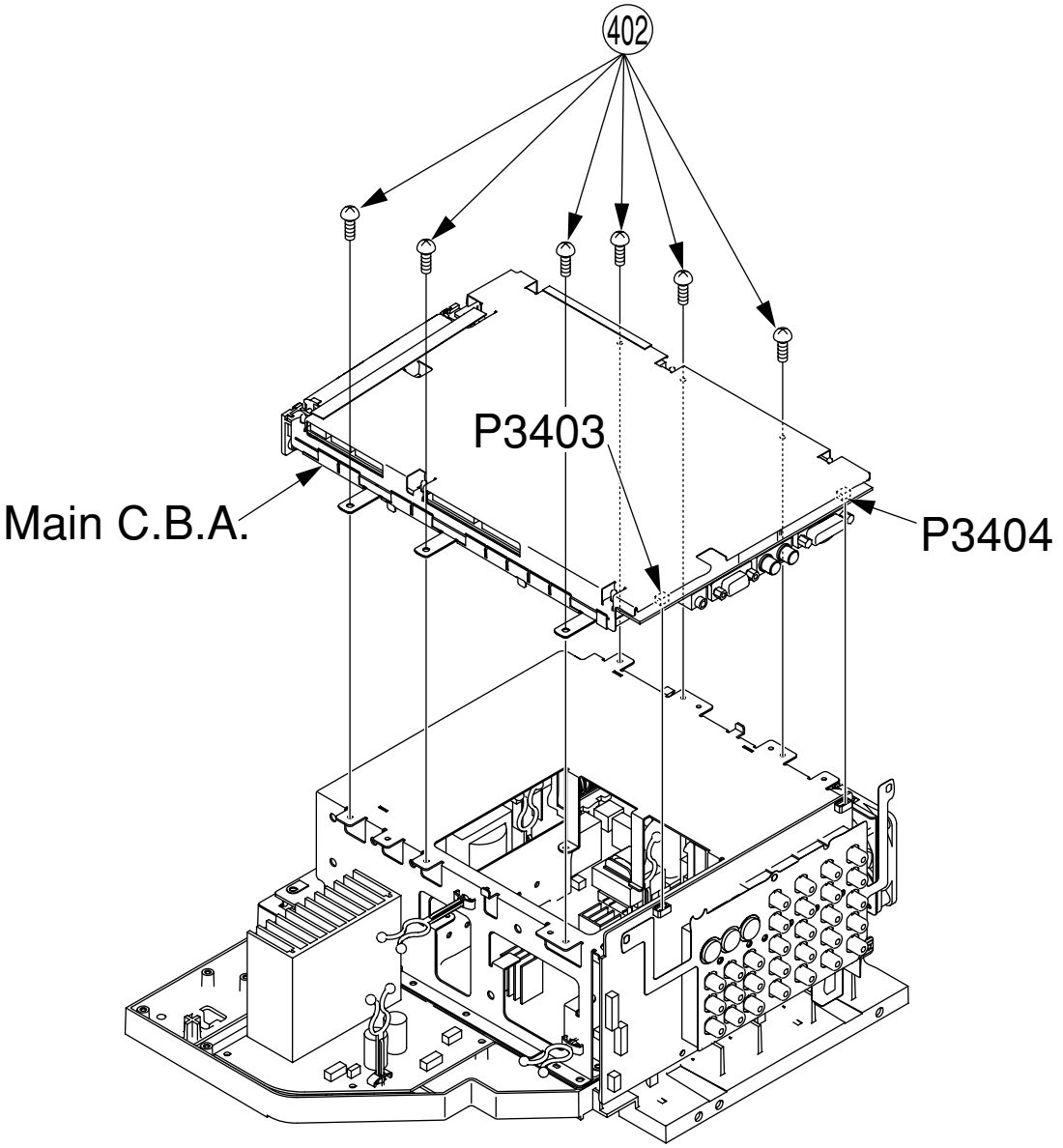


Fig. D3-3

5. 1) Disconnect Connector P3603 and release from the clamper.
   2) Remove the Rear Jack C.B.A. and the GND Plate C from the slots by removing the 2 Screws (402).

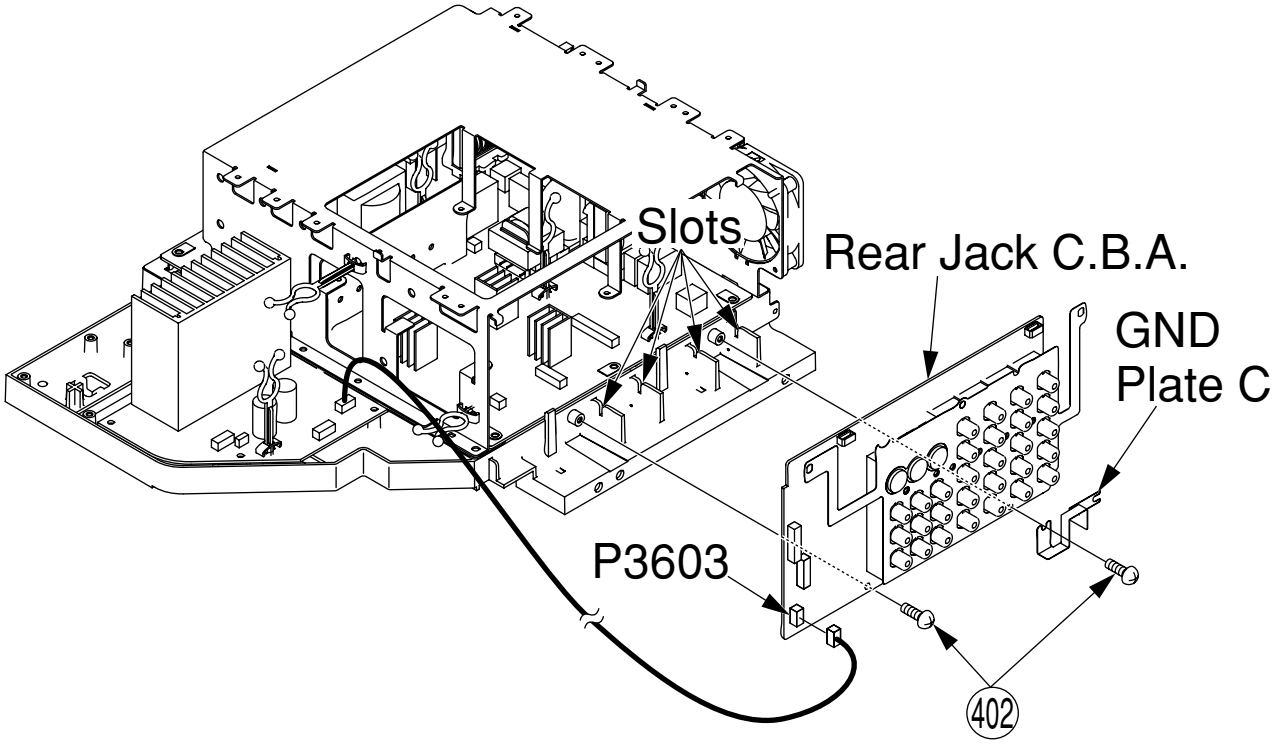


Fig. D3-4

6. 1) Disconnect Connector P4501 and release from the clamper.
   2) Remove the Audio Amp C.B.A. by removing the 4 Screws (402).
   Note: The Audio Amp C.B.A. can be removed from the TV/Tuner Unit at any time.

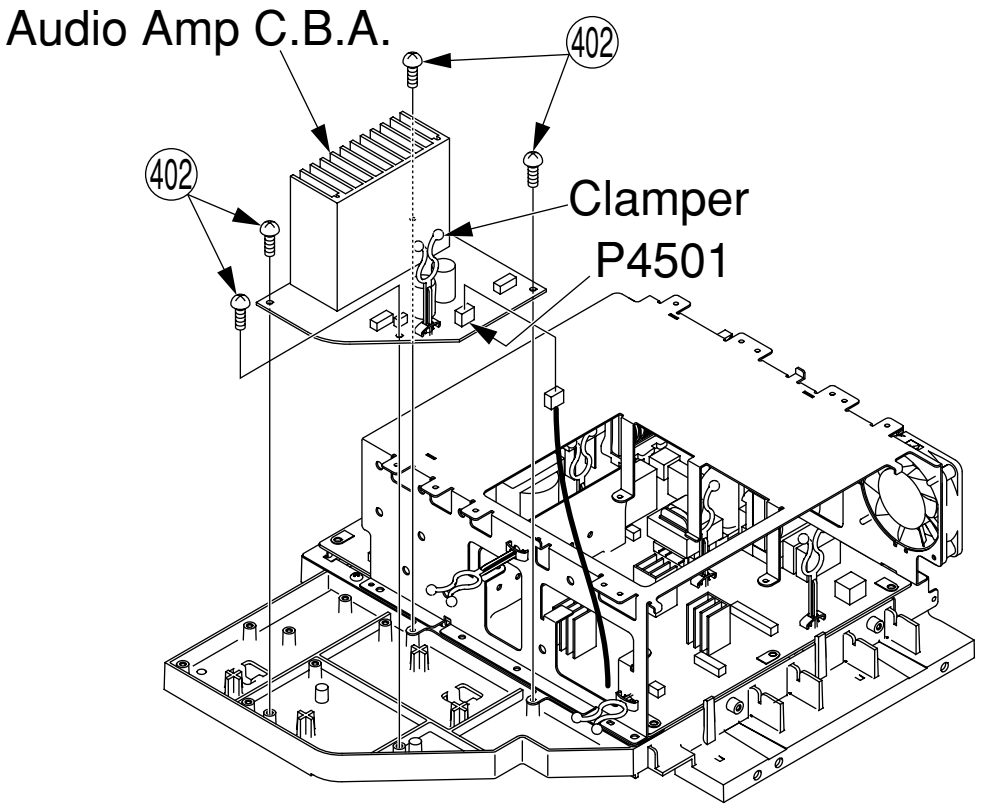


Fig. D3-5

7. 1) Disconnect Connector P1006 and release from the clamper.
   2) Remove the Main P.C.B. Frame by removing the 6 Screws (402), and remove the Fan 4 by removing the 2 Screws (435).
   3) Remove the Power C.B.A. by removing the 5 Screws (411).
   4) Disconnect Connector P804 (AC Cord) and release from the clamper.

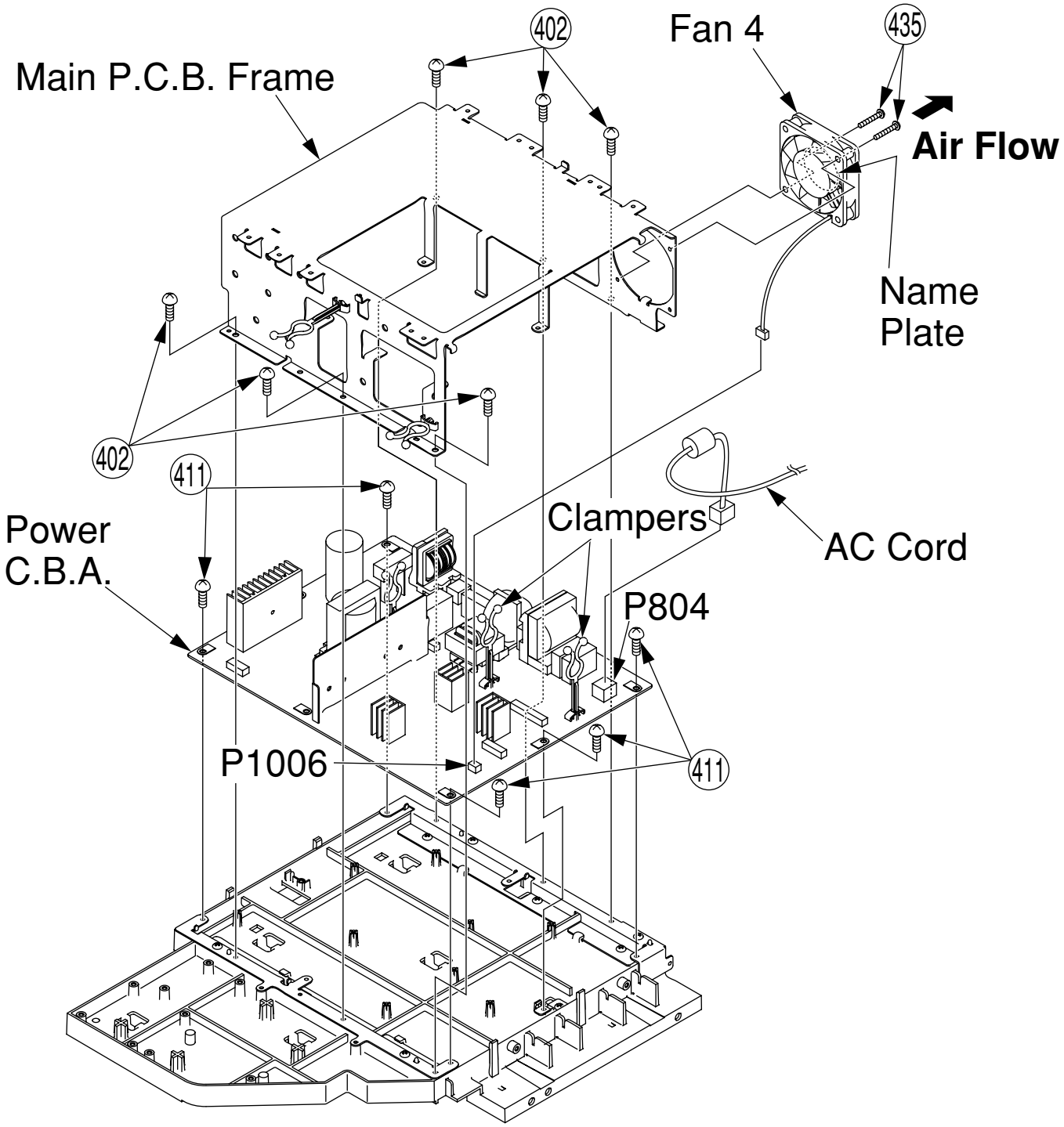


Fig. D3-6

Reassembly Note for Fan 4:
Install the Fan 4 with the 2 Screws (435) so that the name plate (manufacture's name etc.) face out (visible from the outside).

Note:

After servicing the Power C.B.A., be sure to connect the Connector P1006 on the Power C.B.A. to install the Fan 4.

Note: Alternative method to access the Power C.B.A. in the TV/Tuner Unit

1) Remove the Rear Jack Holder by removing the 3 Screws (402) from the TV/Tuner Unit.
2) Remove the 2 Screws (402) on the Rear Jack C.B.A.
3) Disconnect Connectors P3401, P1006 and release from the clampers.
4) Remove the 6 Screws (402) on the Main P.C.B. Frame and remove it.

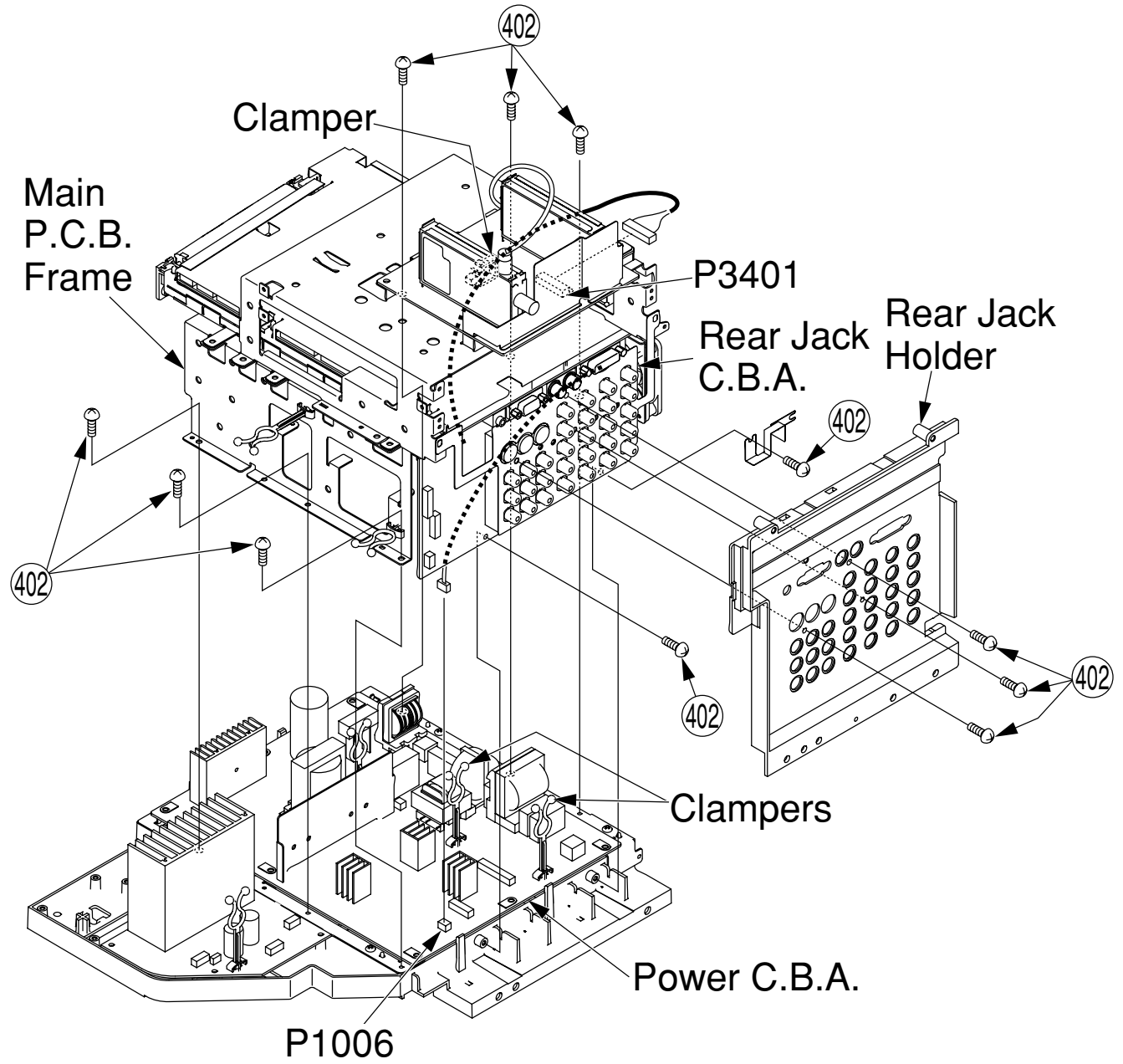


Fig. D3-7

Note:

After servicing the Power C.B.A., be sure to connect the Connector P1006 on the Power C.B.A. to install the Fan 4.

REMOVAL OF THE SCREEN UNIT AND THE SPEAKER FROM THE DISPLAY

1. 1) Remove the Front Cover Unit from the 8 latches.
   2) Remove the Optical Cover by removing the 2 Screws (454).
   3) Remove the 2 Screws (401) from front side.

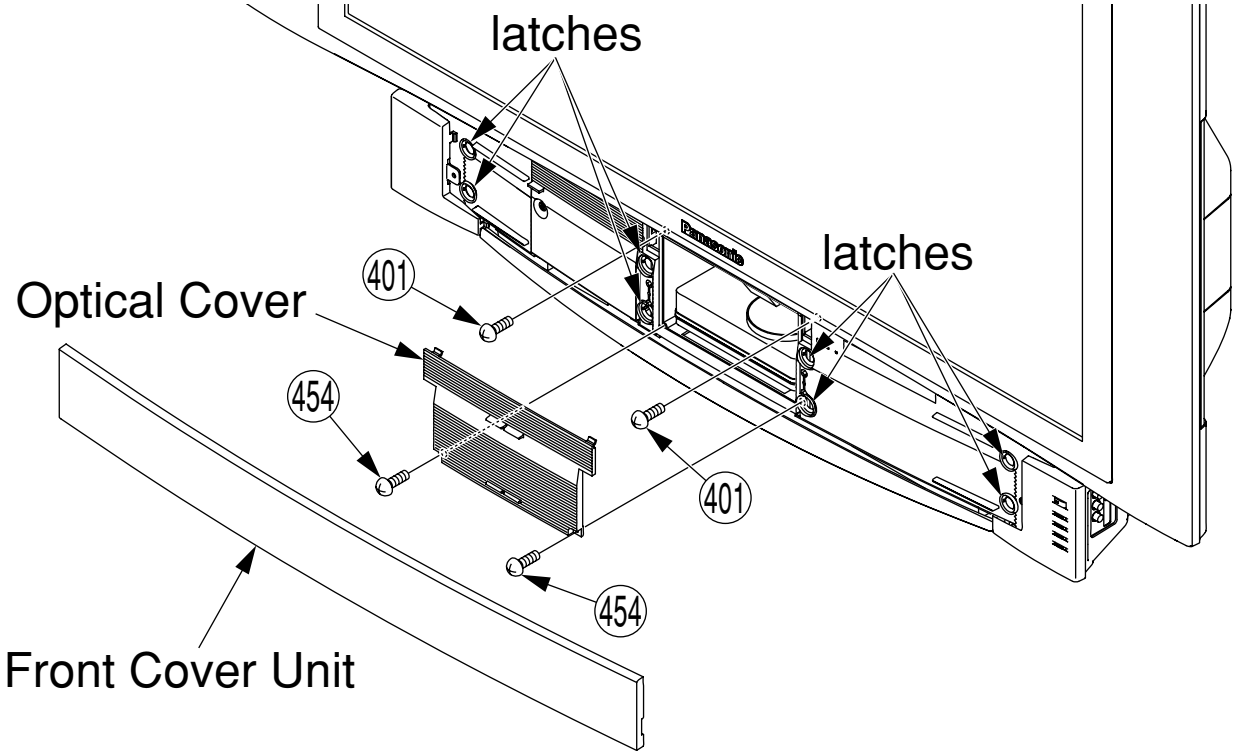


Fig. D4-1

2. Remove the Rear Cover by removing the 18 Screws (401).

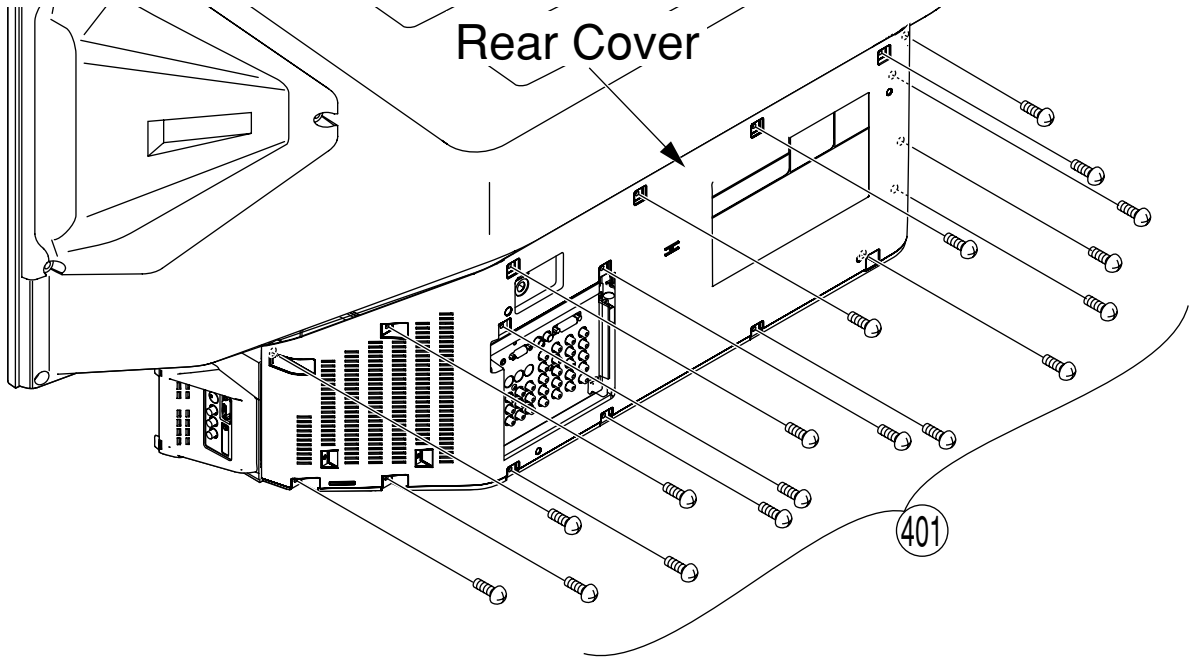


Fig. D4-2

3. 1) Disconnect Connector P4503 (speaker cables) and release it from the clamper.
   2) Remove the 2 Screws (401) from rear side, and remove the Display.

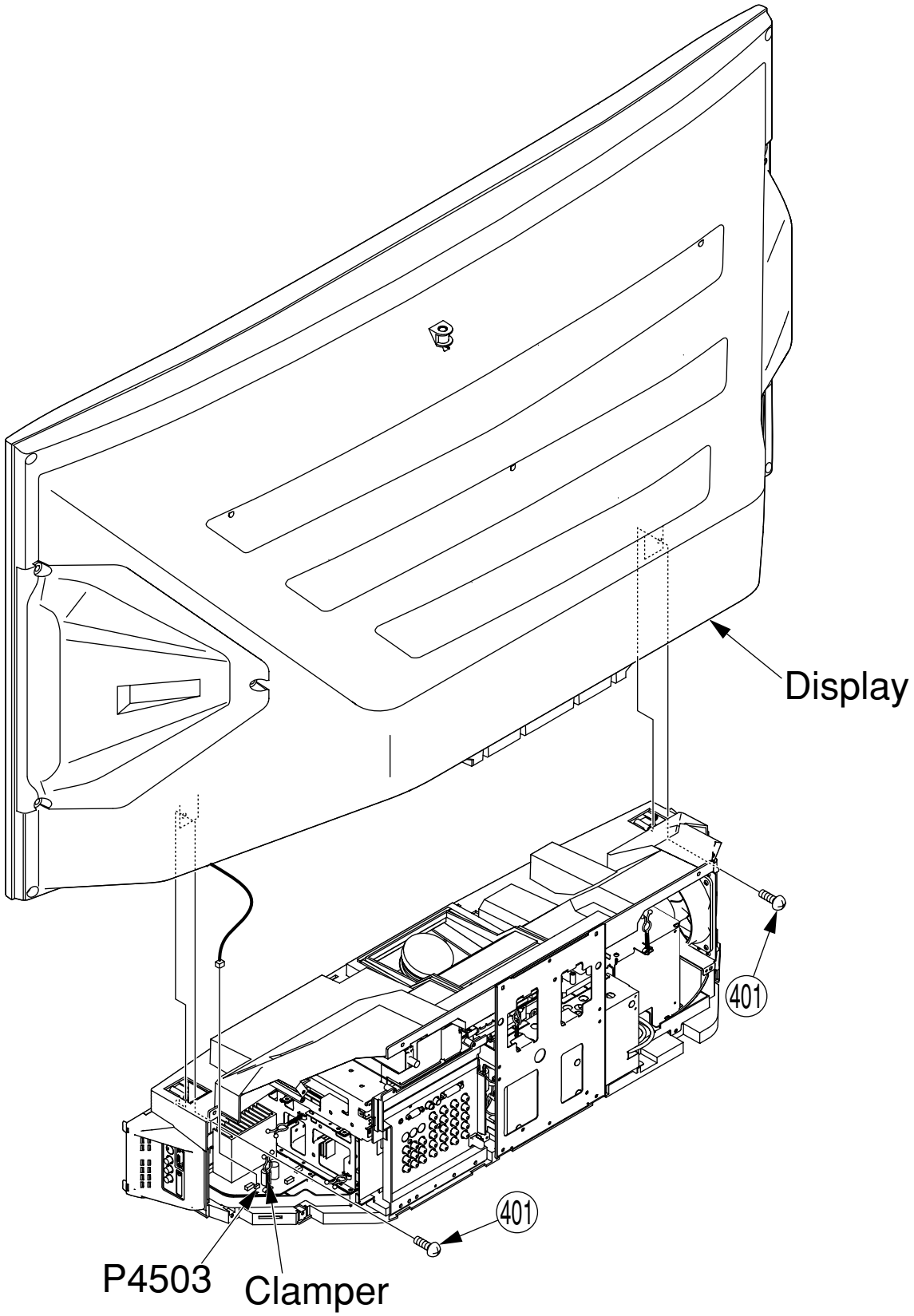


Fig. D4-3

4. 1) Remove the Speaker-L and the Speaker-R by removing the 6 Screws (450) and 6 Washers (453), and disconnect the connectors P4553.
   2) Remove the Screen Unit by removing the 16 Screws (401).

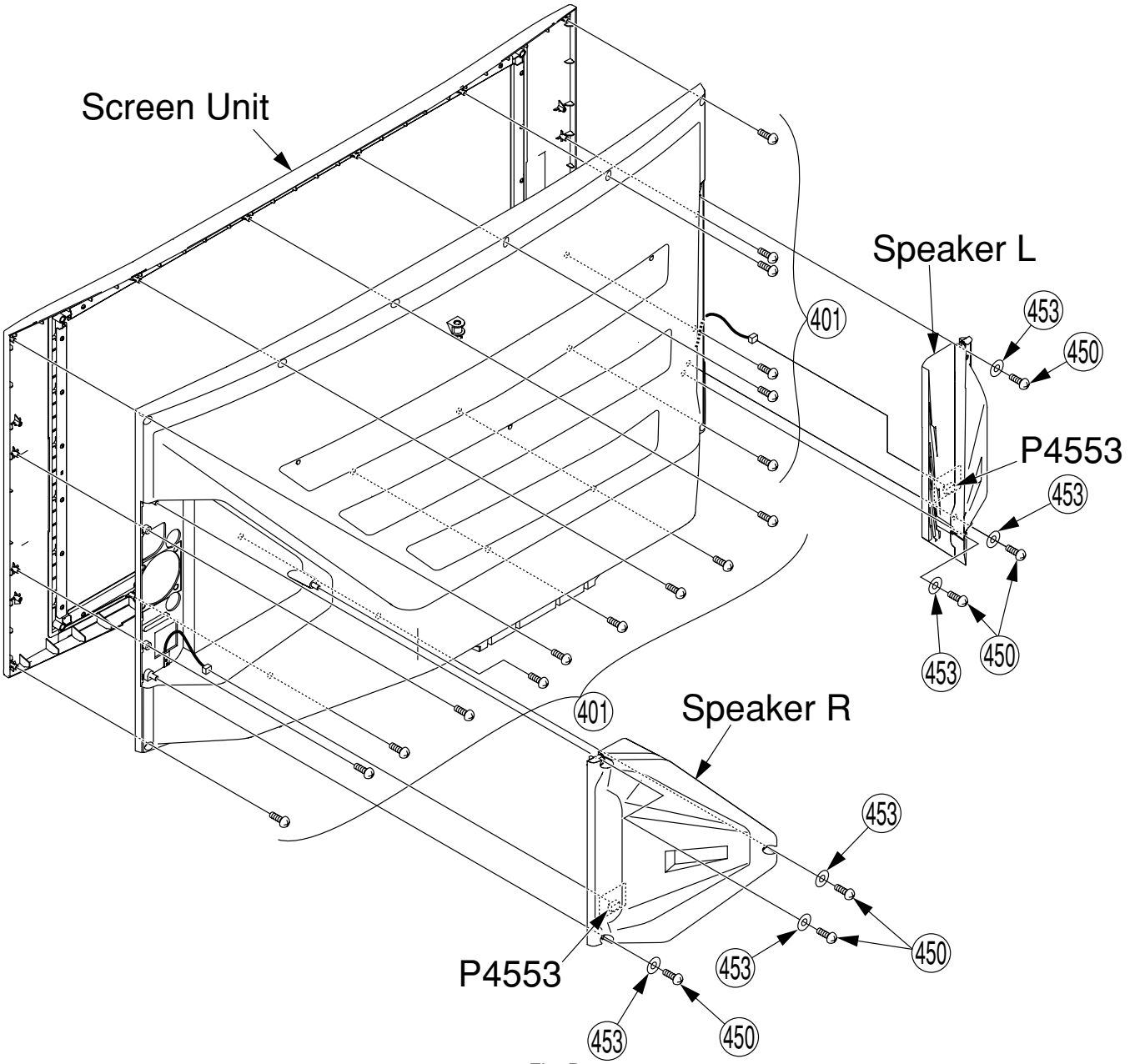


Fig. D4-4

5. Remove the 2 Screen Plate H and 2 Screen Plate V by removing 30 Screws (401), and remove the Fresnel Lens and the Lenticular Screen.

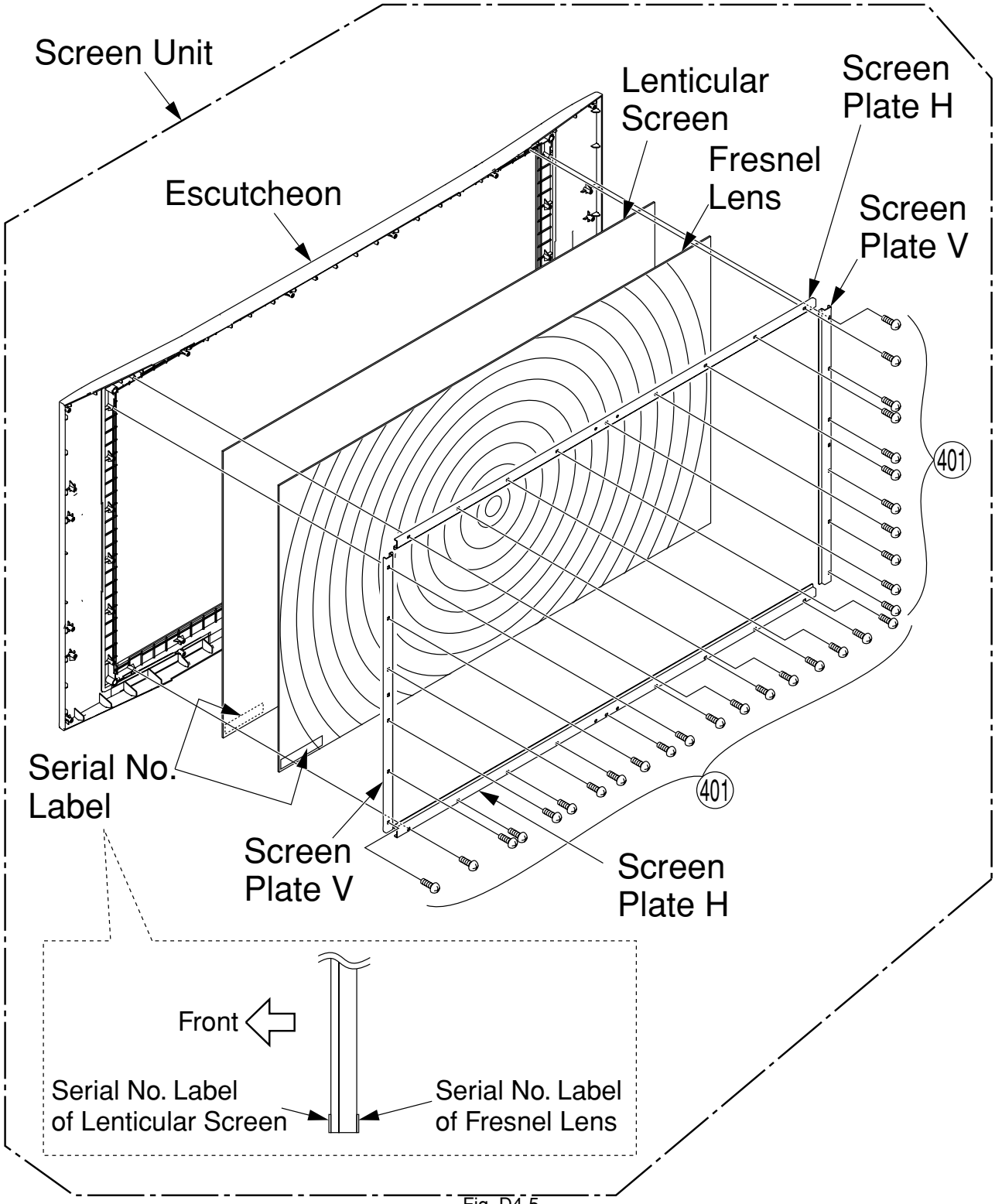


Fig. D4-5

Reassembly Note:
Install them so that Serial No. Labels are on the each outside as shown above.

Replacement Note for Screen Unit:
The Screen Unit is supplied as a unit, or the individual parts (Fresnel Lens, Lenticular Screen) in the Screen Unit are also supplied. When replacing the Fresnel Lens and the Lenticular Screen, take care that dust, etc., does not adhere between the Fresnel Lens and the Lenticular Screen. Due to this risk, it is strongly recommended to replace the Screen Unit as a unit.

REMOVAL OF THE MIRROR FROM THE BACK COVER

1. Remove the Screen Unit. Refer to Steps 1~4 in "REMOVAL OF THE SCREEN UNIT AND THE SPEAKER FROM THE DISPLAY."
2. 1) Remove the 2 Mirror Holder H and the 2 Mirror Holder V Unit by removing the 12 Screws (401).
   2) Remove the Mirror from the top by releasing the Back Cover slots.
   Note: Be careful that the Mirror does not fall down when removing.

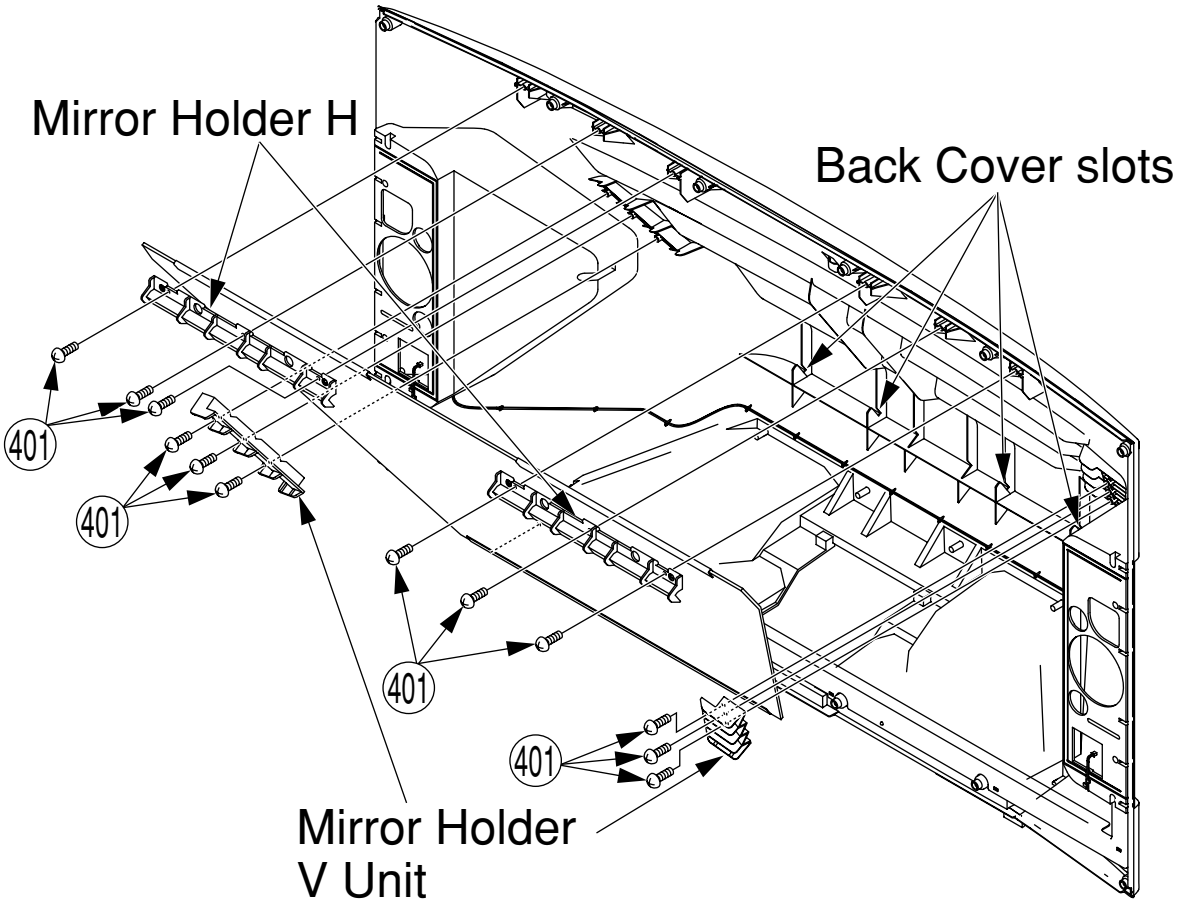


Fig. D4-6

Reassembly Notes for Mirror:
Install the Mirror as following procedures:
1) Place the 3 sheets on the top and bottom edges of the Mirror.

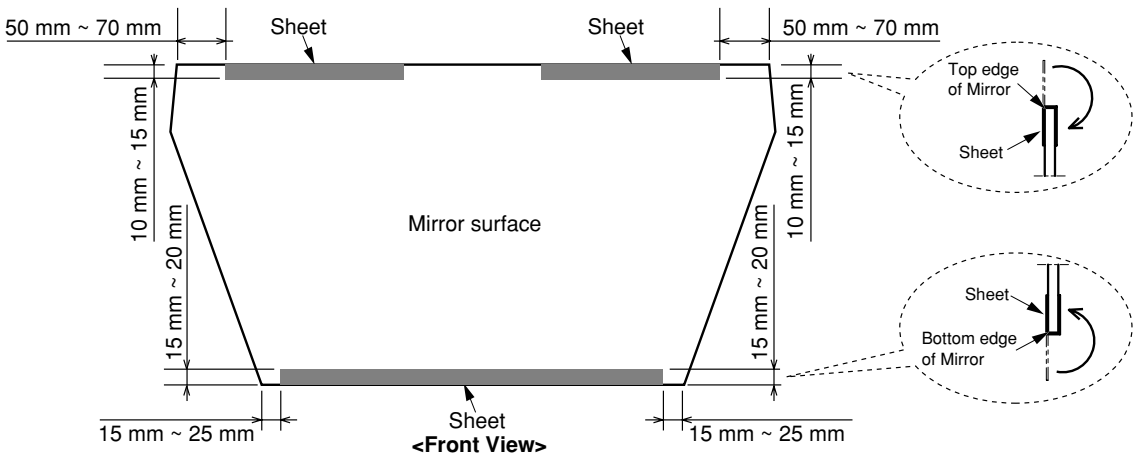


Fig. D4-7

2) Hold the sheet portions of the Mirror, and insert the Mirror from the top into the Back Cover slots carefully. When handling the Mirror, do not touch the Mirror surface.
3) Install the 2 Mirror Holder H and the 2 Mirror Holder V on the Mirror and tighten the 12 Screws (401).

REMOVAL OF THE FRONT JACK C.B.A. AND THE OPERATION C.B.A. FROM THE CABINET

1. 1) Remove the Rear Cover by removing the 18 Screws.
   2) Disconnect Connector P6305 and release it from the clamper.
2. 1) Remove the Front Cover Unit from the 8 latches.
   2) Remove the Screw (454).
   3) Slide the Front Side Cover R with the Operation C.B.A. as indicated by the arrow to release the 4 slots.
   4) Pull off the Operation C.B.A. from front side.
   5) Remove the Operation C.B.A. and the Operation Button Unit from the Front Side Cover R by removing the 4 Screws (421).

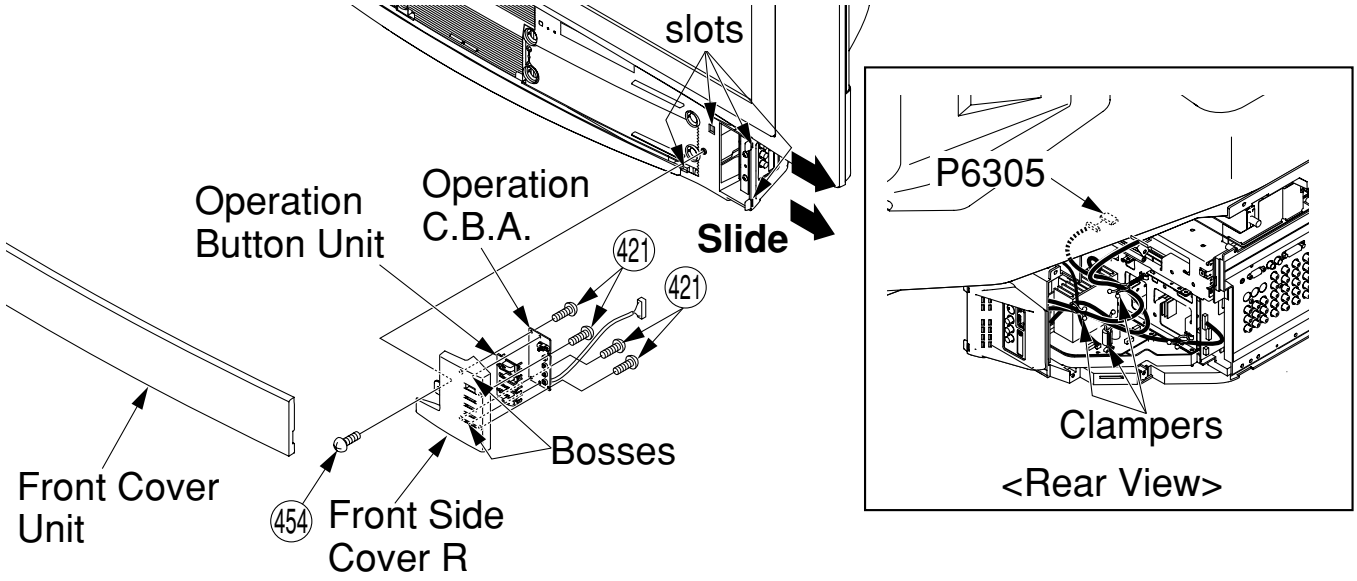


Fig. D5-1

3. 1) Disconnect Connectors P3502, P5501 and release them from the clampers.
   2) Remove the 2 Screw (401).
   3) Pull off the Front Jack C.B.A. from front side.
   4) Remove the Front Jack C.B.A. and the Front Jack Grounding Plate from the Side Jack Holder by removing the 2 Screws (421) and releasing the 2 Locking Tabs.

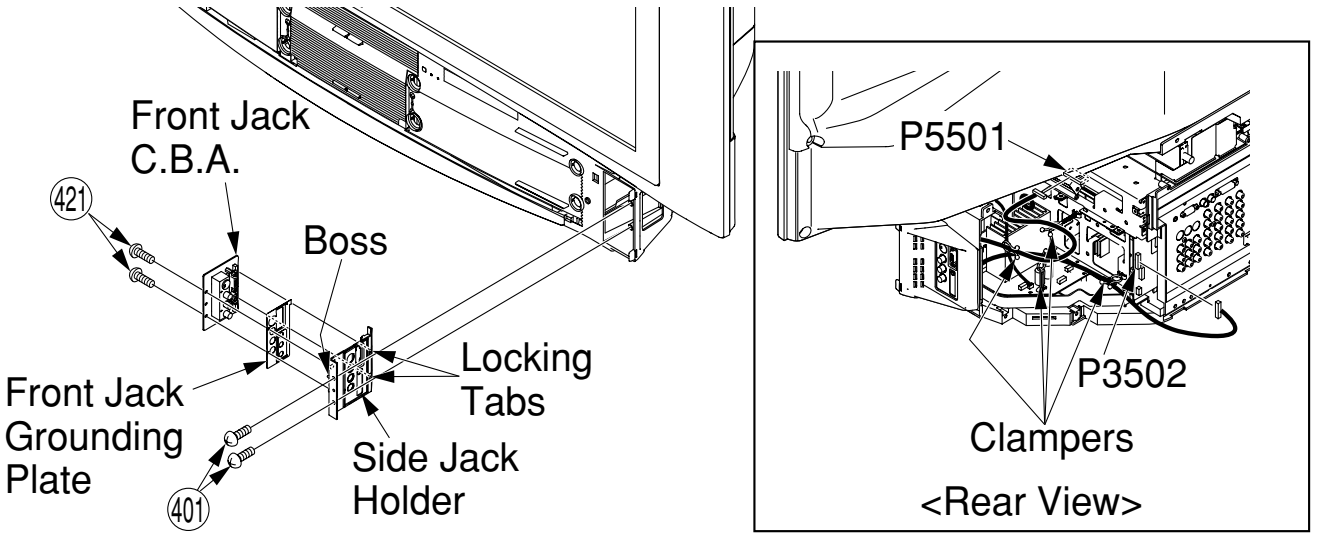


Fig. D5-2

REMOVAL OF THE COVER SWITCH C.B.A. FROM THE CABINET

1. Remove the Projection Unit. Refer to Steps 1~2 in “REMOVAL OF THE PROJECTION UNIT FROM THE CABINET.”
2. 1) Remove the Front Cover Unit from the 8 latches.
   2) Remove the Optical Cover by removing the 2 Screws (454).
   3) Remove the Screw (401) from the front side.

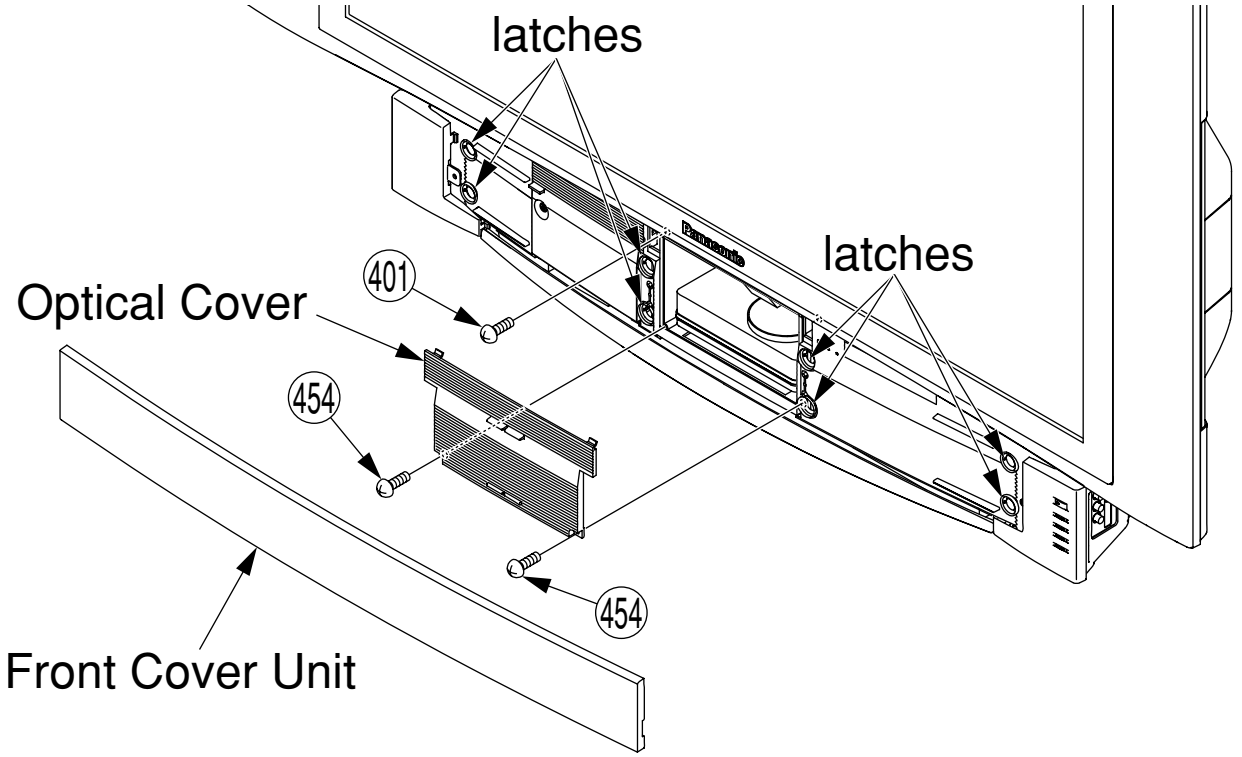


Fig. D6-1

4) To remove the Cover Switch C.B.A., remove the Display Support Plate L with the Cover Switch C.B.A. by removing the 2 Screws (401).
5) Remove the Cover Switch C.B.A. by removing the Screw (402).

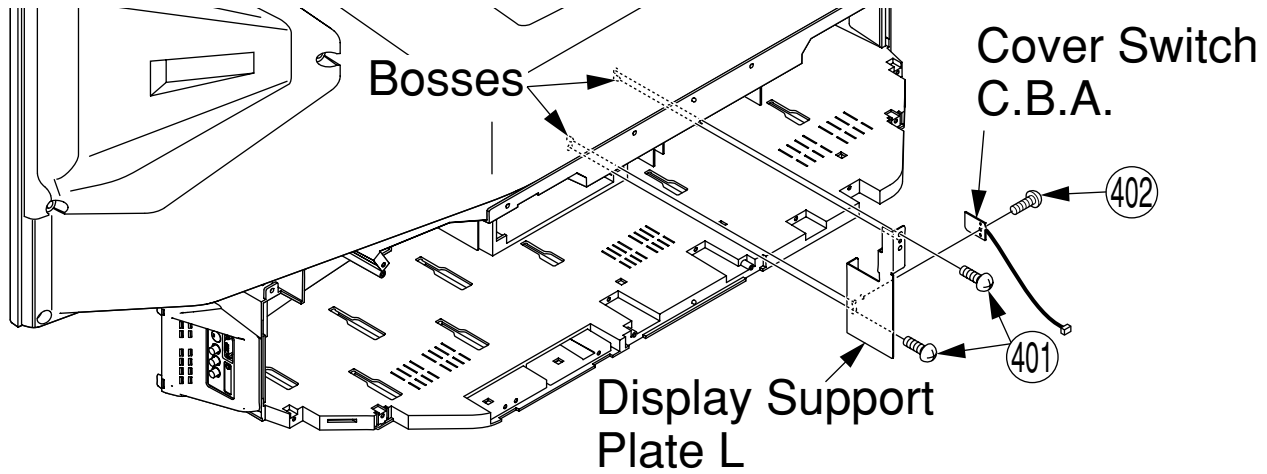


Fig. D6-2

Reassembly Note:
When installing the Display Support Plate L with the Cover Switch C.B.A., install it with the Lamp Cover removed.

INITIAL GUIDELINE

The table below shows which adjustments are necessary according to the unit parts and individual parts to be replaced. Make sure to perform these adjustments shown below as necessary.

Adjustment Item \ Replacement Parts		Tuner C.B.A. is included in TV/Tuner Unit	
		Tuner1 (Main Tuner)	IC7501 (MTS/SAP Signal Process)
Tuner C.B.A. Adjustment Section	Main Tuner Video Level Adjustment (VR Adjustment)	◯	
	Separation Adjustment (VR Adjustment)	◯	◯

Note: ◯ : Adjustment Item

Fig. E1-1

Section	Adjustment Item	Necessary Equipment	Input	
Tuner C.B.A. Adjustment Section	Main Tuner Video Level Adjustment (VR Adjustment)	·NTSC Video Pattern Generator ·Oscilloscope ·Plastic Tip Driver	75% Color Bar Signal	RF (TV)
	Separation Adjustment (VR Adjustment)	·MTS/SAP Signal Generator ·Oscilloscope ·Plastic Tip Driver	MTS Signal (Only L CH, 300Hz, 30% Modulating)	RF (TV)

Fig. E1-2

TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope
   Voltage Range: 0.001 V to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1
2. NTSC Video Pattern Generator
3. Plastic Tip Driver and Non-Metal Driver
4. MTS/SAP Signal Generator
   (TV Multi-Channel Sound Modulator (U.S.A.))

HOW TO READ THE ADJUSTMENT PROCEDURES

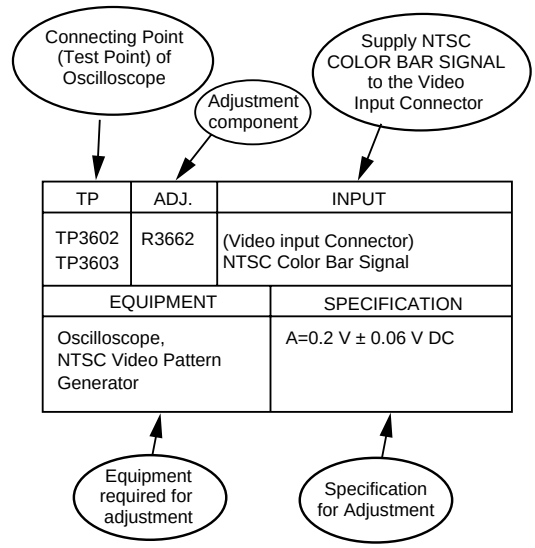


Fig. E2-1

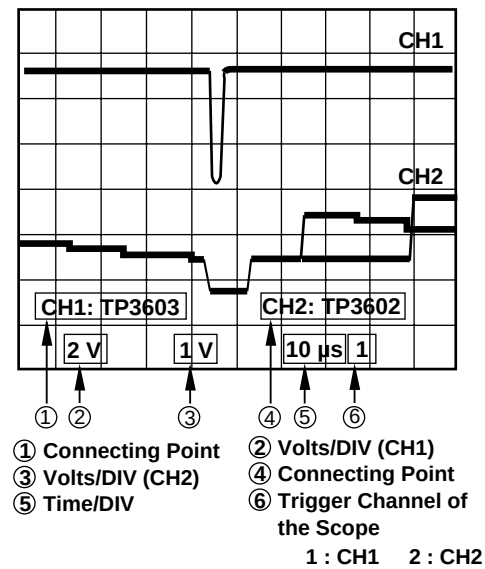
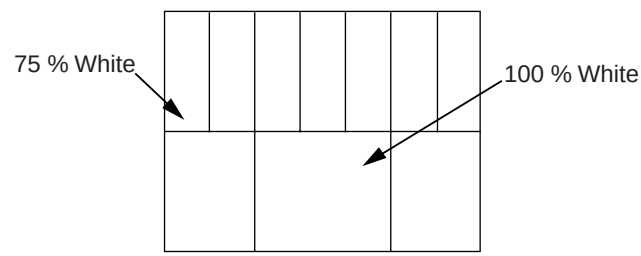


Fig. E2-2



75 % Color Bar Signal (Standard)

Fig. E3-3

MAIN TUNER VIDEO LEVEL ADJUSTMENT (VR ADJUSTMENT)

Purpose:
To set the optimum signal level.

Symptom of Misadjustment:
The picture will be too light or too dark.

TP	ADJ.	INPUT
TP7001	R7011	(RF Input Terminal) 75 % Color Bar Signal (Standard)

EQUIPMENT	SPECIFICATION
Oscilloscope NTSC Video Pattern Generator Plastic Tip Driver	1.0V[p-p]±0.05V[p-p]

Note:
TP7001, R7011: Tuner C.B.A.

1. Connect the NTSC Video Pattern Generator to the RF Input Terminal.
2. Set to TV mode by pressing TV/VIDEO key on the remote.
3. Supply Color Bar Signal.
4. Connect the Oscilloscope to TP7001 on the Tuner C.B.A.
5. Adjust R7011 (MAIN TUNER VIDEO LEVEL) on the Tuner C.B.A. so that the signal level A becomes 1.0V[p-p]±0.05V[p-p].

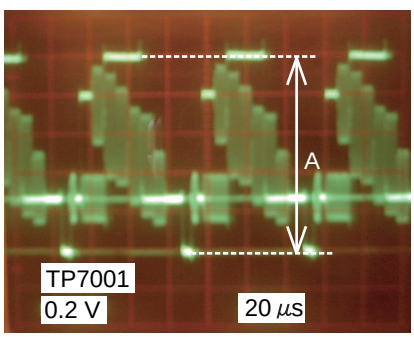


Fig. E3

SEPARATION ADJUSTMENT (VR ADJUSTMENT)

Purpose:
To separate the L and R Channels of Stereo Signal.

Symptom of Misadjustment:
The L and R Channels of Stereo Signal will not be separated properly resultin in no stereophonic effect.

TP	ADJ.	INPUT
TP7501	R7514	(RF Input Terminal) MTS (ONLY L CH) 300 Hz±5 Hz 30 % Modulating

EQUIPMENT	SPECIFICATION
Oscilloscope MTS/SAP Signal Generator Plastic Tip Driver	Refer to Description below

Note:
TP7501, R7514: Tuner C.B.A.

1. Connect the MTS/SAP Signal Generator to the RF Input Terminal.
   Then, set the MTS/SAP Signal Generator as follows.
   MTS (ONLY L CH)
   300 Hz ± 5 Hz
   30 % Modulating
2. Set to TV mode by pressing TV/VIDEO key on the remote and then set to STEREO audio mode by pressing SAP key on the remote.
3. Connect the Oscilloscope to TP7501 on the Tuner C.B.A.
4. Adjust R7514 (SEPARATION) on the Tuner C.B.A. so that the signal level is minimum.

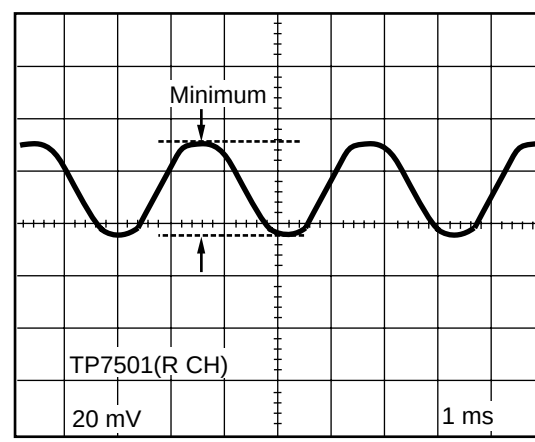
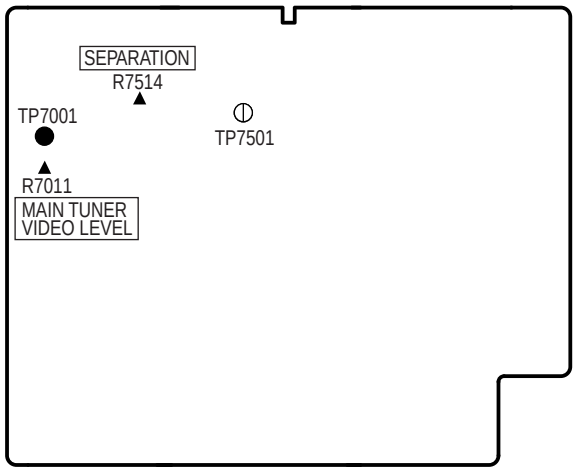


Fig. E4

TEST POINTS AND CONTROL LOCATION

Tuner C.B.A.



(Component Side)

Test Point Information

● Test Point with a Test Pin.

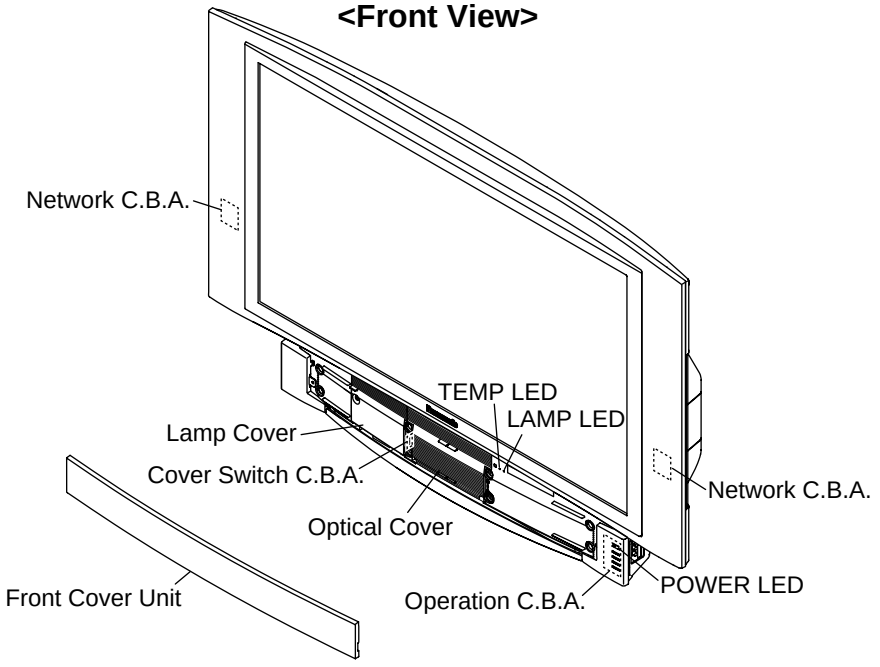
⏀ Test Point with a jumper wire across a hole in the P.C.B.

○ Test Point with no Test Pin.

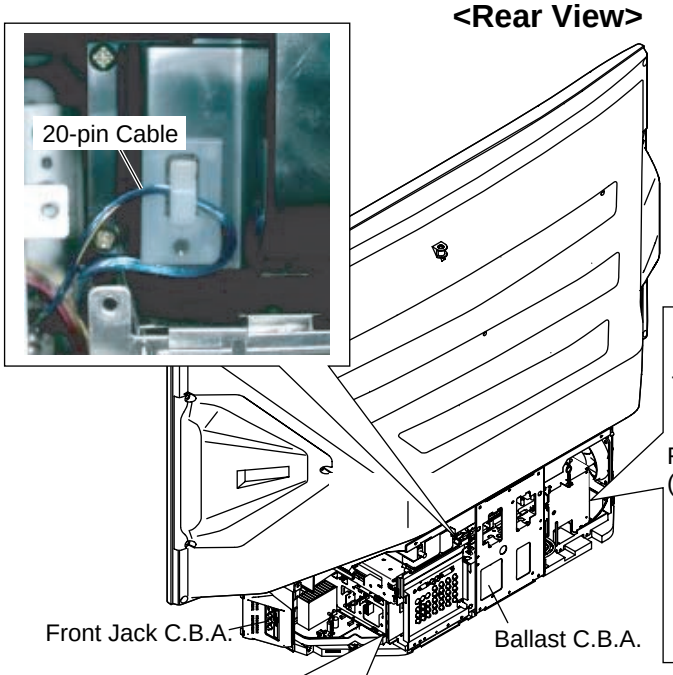
▭ Test Point with a Hook.

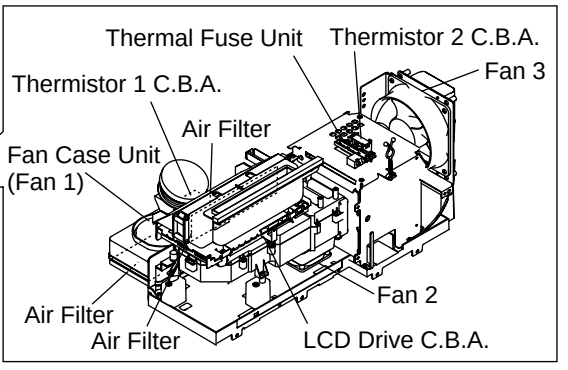
MAIN PARTS LOCATION

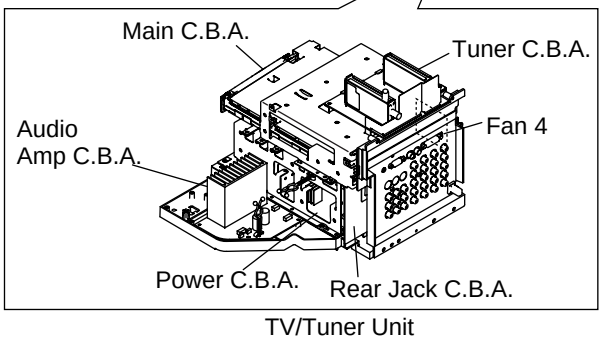
<Front View>

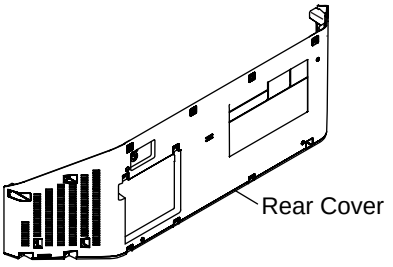


<Rear View>









ERROR INDICATION INFORMATION

Each LED indication facilitates finding the cause of the error.
When an error is detected, each LED on the front will light up or flash when the AC Cord is plugged in.
The detected error data will not be stored in the EEPROM. This data is cleared when the AC Cord is unplugged.

						(Note 3)	(Note 4)
Error No.	Error Information	ERROR DESCRIPTION	POWER LED	TEMP LED	LAMP LED	OSD	LAMP OFF
1)	**Fan1, Fan2 or Fan3 stopped**	IC6302(pin6) detects the stop of FAN1, FAN2 or FAN3, then indicates the error when the FAN1, FAN2 or FAN3 is stopped.	flashes orange once every 5 seconds	-	-		○
2)	**Lamp Cover open**	IC6003(pin66) detects the Lamp Cover condition (open or close), then indicates the error when the Lamp Cover is open.	flashes orange twice every 5 seconds	-	-		○
3)	**Temperature Sensor shorted or open**	IC6302(pin4 and 5) detects open or short of the Temperature Sensor (R2811) on Thermistor 1 C.B.A., then indicates the error when Temperature Sensor is open or shorted. (The error is not detected for 1 minute after Lamp ON.)	-	flashes once every 5 seconds	-		○
4)	**Abnormal Temperature**	IC6302(pin4 and 5) detects the temperature near the FAN1 by the Temperature Sensor (R2811) on Thermistor 1 C.B.A., then indicates the error when the temperature exceeds 55℃ (131℉). (The error is not detected for 1 minute after Lamp ON.)	-	flashes twice every 5 seconds	-		○
5)	**Ballast Error (abnormal Lamp)**	IC6003(pin19) detects the error of the Lamp, and Ballast C.B.A., then indicates the error when an inner malfunction of Ballast C.B.A. occurs, the Lamp voltage becomes more than 130V or less than 30V, the Lamp is cracked, the Thermal Fuse Unit is open or the Lamp is not cooled off.	(flashes green for 140 seconds. ⬇ flashes red)	-	flashes once every 5 seconds		○
6)	**Ballast Error (abnormal Lamp voltage)**	IC6003(pin19) detects the error of the Lamp, then indicates the error when the Lamp is defective.	(flashes green for 140 seconds. ⬇ flashes red)	-	flashes twice every 5 seconds		○
7)	**Ballast Error (abnormal temperature)**	IC6003(pin19) detects the error of Ballast C.B.A., then indicates the error when the thermal fuse (F1302) 117℃ (243℉) in Ballast C.B.A. is open.	(flashes green for 140 seconds. ⬇ flashes red)	-	flashes 3 times every 5 seconds		○
8)	**Ballast Error (other causes)**	IC6003(pin19) detects the error of Ballast C.B.A., then indicates the error when an inner malfunction of Ballast C.B.A. occurs.	(flashes green for 140 seconds. ⬇ flashes red)	-	flashes 4 times every 5 seconds		○
9)	**Abnormal Voltage on 33 V line of Main C.B.A.**	IC6302(pin61) detects +33V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +10V.	flashes orange 5 times every 5 seconds	flashes once every 5 seconds	flashes once every 5 seconds		○
10)	**Abnormal Voltage on 9 V line of Main C.B.A.**	IC6302(pin64) detects +9V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +2V.	flashes orange 6 times every 5 seconds	flashes twice every 5 seconds	flashes twice every 5 seconds		○
11)	**Abnormal Voltage on 5 V line of Main C.B.A.**	IC6302(pin63) detects +5V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +1V.	flashes orange 7 times every 5 seconds	flashes 3 times every 5 seconds	flashes 3 times every 5 seconds		○
12)	**Abnormal Voltage on 3.3 V line of Main C.B.A.**	IC6302(pin7) detects +3.3V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +1.5V.	flashes orange 8 times every 5 seconds	flashes 4 times every 5 seconds	flashes 4 times every 5 seconds		○
13)	**Abnormal Voltage on -5 V line of Main C.B.A.**	IC6302(pin62) detects -5V line voltage on Main C.B.A., then indicates the error when the voltage becomes more than 0V.	flashes orange 9 times every 5 seconds	flashes 5 times every 5 seconds	flashes 5 times every 5 seconds		○
14)	**Abnormal Voltage on 6.5 V line of Main C.B.A.**	IC6302(pin60) detects +6.5V line voltage on Main C.B.A., then indicates the error when the voltage becomes less than +2V.	flashes orange 10 times every 5 seconds	flashes 6 times every 5 seconds	flashes 6 times every 5 seconds		○
15)	**Temperature Sensor shorted or open**	IC6302(pin2 and 3) detects open or short of the Temperature Sensor (R2821) on Thermistor 2 C.B.A., then indicates the error when Temperature Sensor is open or shorted. (The error is not detected for 4 minutes after Lamp ON.)	-	flashes 3 times every 5 seconds	-		○
16)	**Abnormal Temperature**	IC6302(pin2 and 3) detects the temperature near the Lamp by the Temperature Sensor (R2821) on Thermistor 2 C.B.A., then indicates the error when the temperature exceeds 85℃ (185℉). (The error is not detected for 4 minutes after Lamp ON.)	-	flashes 4 times every 5 seconds	-		○
17)	**Clogged air filter**	IC6003(pin65) detects clogged air filter when the filter detection value exceeds the standard value.	-	flashes 5 times every 5 seconds	-	○	○
18)	**Request for Lamp Replacement**	When accumulated Lamp operation time reaches 10,000 hours, OSD (replacing the Lamp) appears on the screen. Note: The Lamp time is stored in EEPROM (IC6005).	-	-	lights up	○	
-	**Forced cooling**	Indicated during forced cooling.	flashes red for 10 minutes	-	flashes 5 times every 5 seconds		

Note:

1. When any of the above errors has occurred, the LED will flash as shown above.
2. When two or more errors have occurred at the same time, the LED will alternate light up and/or flash patterns as shown above every 5 seconds.
3. Warning OSD appears when the air filter is clogged or accumulated Lamp operation time reaches 10,000 hours.
4. LAMP OFF: The LED will flash immediately after the Lamp comes off.
5. IC6003 and IC6302 are mounted on the Main C.B.A.

How to solve the problem indicated by the Error Indication of LED

Error No.	Symptom	Problem	Possible Solution
1)	Lamp turns off.	Cooling Fan (Fan1, Fan2 and/or Fan3) malfunction.	Are the Fan1, Fan2 and Fan3 operating? NO → Replace the Power C.B.A. Still NG, replace the Projection Unit. Still NG, replace the Main C.B.A. Only the Fan1 stops. → Replace the Projection Unit. Only the Fan2 stops. → Replace the Projection Unit. Only the Fan3 stops. → Replace the Fan3.
2)	Lamp turns off or Lamp does not light up.	Mis-installed the Lamp Cover.	1. Tighten the screw of the Lamp Cover. 2. Replace the Cover SW (SW2911) on the Cover Switch C.B.A. 3. Replace the Main C.B.A. 4. Replace the Projection Unit.
3)	Lamp turns off.	The temperature sensor (R2811) on the Thermistor 1 C.B.A. on the Fan 1 is short or open.	Remove P2303 connector on the LCD Drive C.B.A. and check if the resistance between pin1 and pin2 of P2811 on the Thermistor 1 C.B.A. is 5kΩ～200kΩ. If NG, replace the Temperature Sensor (R2811) on the Thermistor 1 C.B.A. Still NG, replace the Projection Unit. Still NG, replace the Main C.B.A. **Note:** The Projection Unit includes LCD Drive C.B.A.
4)	Lamp turns off.	1. Clogged air filter. 2. Blocked air intake. 3. The surrounding temperature of the place of use may be too high.	Cleaning the Air Filter on the Projection Unit.
5)	Lamp turns off or Lamp does not light up.	1. The Lamp is not cooled off. 2. Thermal Fuse Unit (115˚C (239˚F)) is defective (open). 3. The Lamp is defective(crack). 4. The Lamp voltage becomes more over 130V or less than 30V. 5. The Ballast C.B.A. is defective. 6. The Main C.B.A. is defective.	1. Wait until the Lamp has cooled off. 2. Confirm that the Thermal Fuse Unit (115˚C(239˚F)) on the Lamp House is not open. 3. Replace the Lamp. 4. Replace the Ballast C.B.A. 5. Replace the Main C.B.A.
6)	Lamp does not light up.	Lamp voltage is not correct due to short of the Lamp.	Replace the Lamp.
7)	Lamp turns off due to abnormally high internal temperature.	Thermal fuse on the Ballast C.B.A. is open due to abnormal temperature rise.	Replace the Ballast C.B.A.
8)	Lamp does not light up.	The Ballast C.B.A. is defective.	If the Lamp does not light up after attempting turning on the power 2 or 3 times, replace the Ballast C.B.A.
9)	Lamp turns off or Lamp does not light up.	+33V line on the Main C.B.A. error.	1. Replace the Power C.B.A. 2. Replace the Main C.B.A. 3. Replace the Tuner C.B.A.
10)	Lamp turns off or Lamp does not light up.	+9V line on the Main C.B.A. error.	1. Replace the Power C.B.A. 2. Replace the Main C.B.A. 3. Replace the Rear Jack C.B.A.
11)	Lamp turns off or Lamp does not light up.	+5V line on the Main C.B.A. error.	1. Replace the Power C.B.A. 2. Replace the Main C.B.A. 3. Replace the Rear Jack C.B.A. 4. Replace the Tuner C.B.A.
12)	Lamp turns off or Lamp does not light up.	+3.3V line on the Main C.B.A. error.	1. Replace the Power C.B.A. 2. Replace the Main C.B.A.
13)	Lamp turns off or Lamp does not light up.	-5V line on the Main C.B.A. error.	1. Replace the Power C.B.A. 2. Replace the Main C.B.A. 3. Replace the Rear Jack C.B.A.
14)	Lamp turns off or Lamp does not light up.	+6.5V line on the Main C.B.A. error.	1. Replace the Power C.B.A. 2. Replace the Main C.B.A.
15)	Lamp turns off.	The temperature sensor (R2821) on the Thermistor 2 C.B.A. on the Lamp House is short or open.	Remove P2304 connector on the LCD Drive C.B.A. and check if the resistance between pin1 and pin2 of P2821 on the Thermistor 2 C.B.A. is 5kΩ～1MΩ. If NG, replace the Temperature Sensor (R2821) on the Thermistor 2 C.B.A. Still NG, replace the Projection Unit. Still NG, replace the Main C.B.A. **Note:** The Projection Unit includes LCD Drive C.B.A.
16)	Lamp turns off.	1. Clogged air filter. 2. Blocked air intake. 3. The surrounding temperature of the place of use may be too high.	Cleaning the Air Filter on the Projection Unit.
17)	OSD (Cleaning the Air Filter) appears on the screen.	Clogged air filter.	1. Cleaning the Air Filter on the Projection Unit. 2. Replace the Projection Unit. 3. Replace the Main C.B.A.
18)	OSD (Replacing the Lamp) appears on the screen.	Accumulated operation time of the Lamp reaches 10,000 hours.	Replace the Lamp.

Lamp turns off or Lamp does not light up

Note:
Before performing the troubleshooting, confirm that all connector cables in the unit are connected to connectors correctly.

1) POWER LED flashes orange once every 5 seconds.
→ Are the Fan1, Fan2 and Fan3 operating?
- NO → Replace the Power C.B.A. Still NG, replace the Projection Unit. Still NG, replace the Main C.B.A.
- Only the Fan1 stops. → Replace the Projection Unit.
- Only the Fan2 stops. → Replace the Projection Unit.
- Only the Fan3 stops. → Replace the Fan3.

2) Power LED flashes orange twice every 5 seconds.
→ Tighten the screw of the Lamp Cover. Still NG, replace the Cover SW (SW2911) on the Cover Switch C.B.A. Still NG, replace the Main C.B.A. Still NG, replace the Projection Unit.

3) TEMP LED flashes once every 5 seconds.
→ Remove P2303 connector on the LCD Drive C.B.A. and check if the resistance between pin1 and pin2 of P2811 on the Thermistor 1 C.B.A. is 5kΩ ~ 200kΩ. If NG, replace the Temperature Sensor (R2811) on the Thermistor 1 C.B.A. Still NG, replace the Projection Unit. Still NG, replace the Main C.B.A.

4) TEMP LED flashes twice every 5 seconds.
→ Cleaning the Air Filter.

5) POWER LED flashes red.
(flashes green 140 seconds. ➡ flashes red.)
LAMP LED flashes once every 5 seconds.
→ Wait until the Lamp has cooled off. Confirm that the Thermal Fuse Unit (115˚C(239˚F)) is not open. Still NG, replace the Lamp. Still NG, replace the Ballast C.B.A. Still NG, replace the Main C.B.A.

6) POWER LED flashes red.
(flashes green 140 seconds. ➡ flashes red.)
LAMP LED flashes twice every 5 seconds.
→ Replace the Lamp.

7) POWER LED flashes red.
(flashes green 140 seconds. ➡ flashes red.)
LAMP LED flashes 3 times every 5 seconds.
→ Replace the Ballast C.B.A.

8) POWER LED flashes red.
(flashes green 140 seconds. ➡ flashes red.)
LAMP LED flashes 4 times every 5 seconds.
→ If the Lamp does not light up after attempting turning on the power 2 or 3 times, replace the Ballast C.B.A.

9) POWER LED flashes orange 5 times every 5 seconds.
TEMP LED flashes once every 5 seconds.
LAMP LED flashes once every 5 seconds.
→ Replace the Power C.B.A. Still NG, replace the Main C.B.A. Still NG, replace the Tuner C.B.A.

10) POWER LED flashes orange 6 times every 5 seconds.
TEMP LED flashes 2 times every 5 seconds.
LAMP LED flashes 2 times every 5 seconds.
→ Replace the Power C.B.A. Still NG, replace the Main C.B.A. Still NG, replace the Rear Jack C.B.A.

11) POWER LED flashes orange 7 times every 5 seconds.
TEMP LED flashes 3 times every 5 seconds.
LAMP LED flashes 3 times every 5 seconds.
→ Replace the Power C.B.A. Still NG, replace the Main C.B.A. Still NG, replace the Rear Jack C.B.A. Still NG, replace the Tuner C.B.A.

12) POWER LED flashes orange 8 times every 5 seconds.
TEMP LED flashes 4 times every 5 seconds.
LAMP LED flashes 4 times every 5 seconds.
→ Replace the Power C.B.A. Still NG, replace the Main C.B.A.

13) POWER LED flashes orange 9 times every 5 seconds.
TEMP LED flashes 5 times every 5 seconds.
LAMP LED flashes 5 times every 5 seconds.
→ Replace the Power C.B.A. Still NG, replace the Main C.B.A. Still NG, replace the Rear Jack C.B.A.

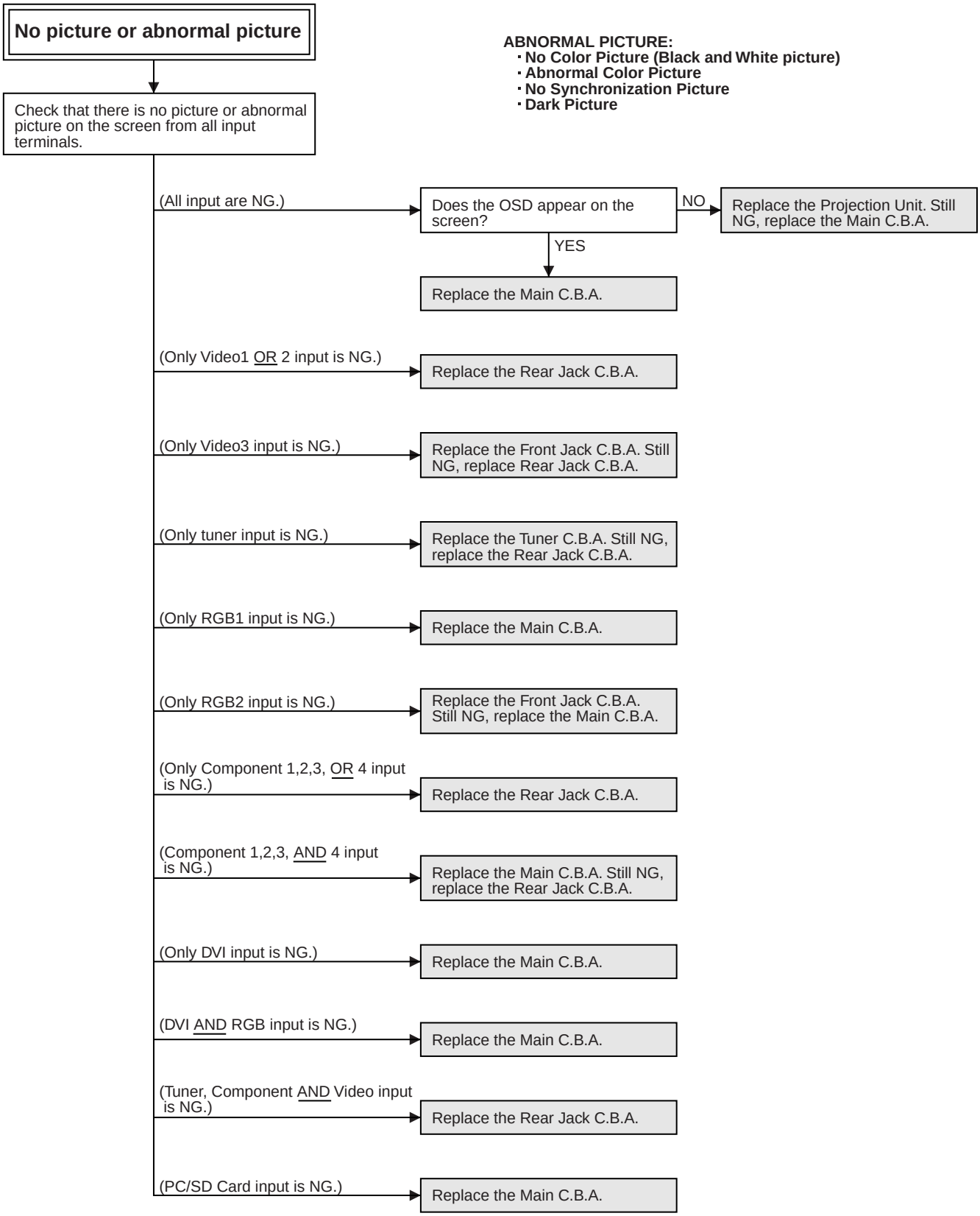
14) POWER LED flashes orange 10 times every 5 seconds.
TEMP LED flashes 6 times every 5 seconds.
LAMP LED flashes 6 times every 5 seconds.
→ Replace the Power C.B.A. Still NG, replace the Main C.B.A.

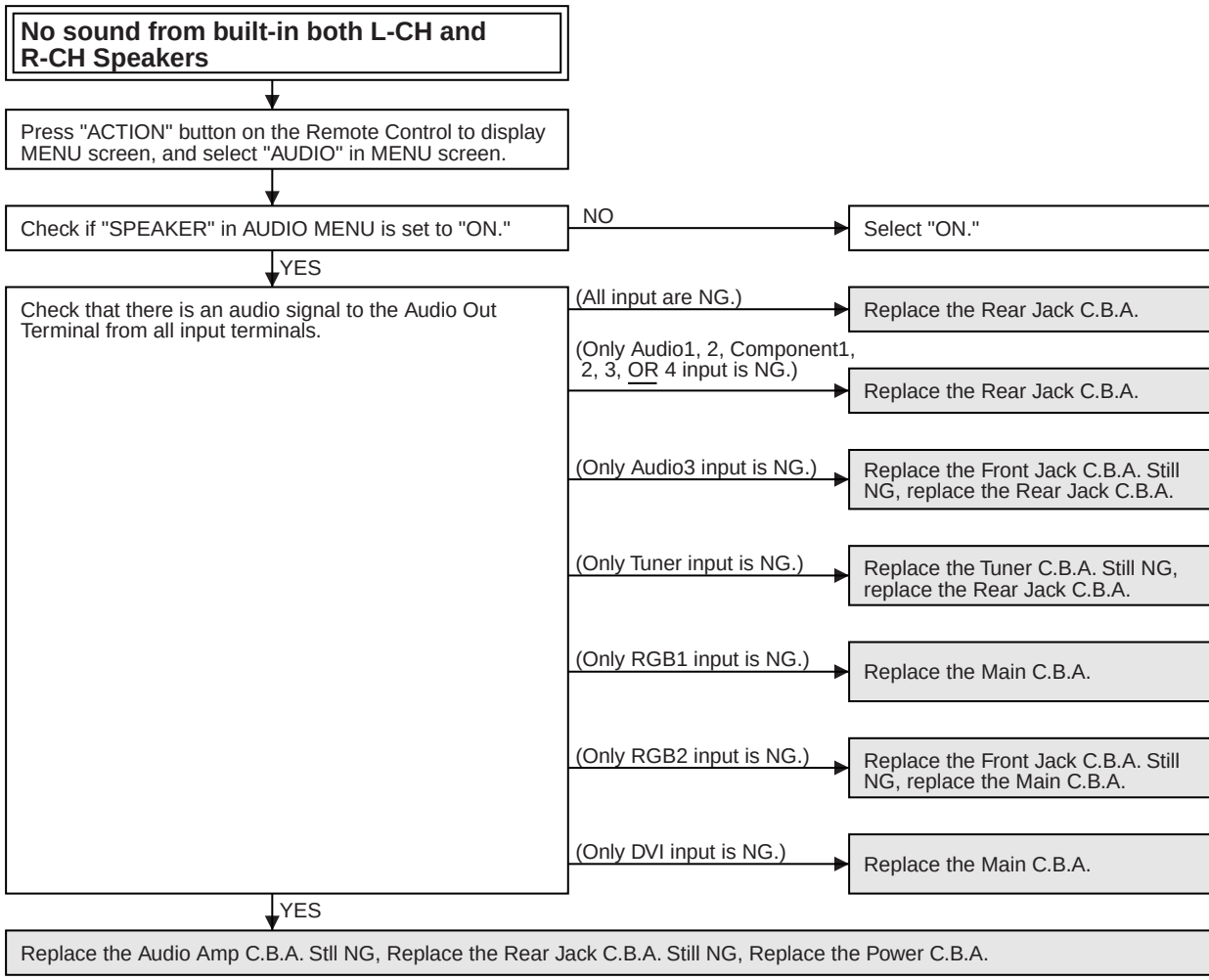
15) TEMP LED flashes 3 times every 5 seconds.
→ Remove P2304 connector on the LCD Drive C.B.A. and check if the resistance between pin1 and pin2 of P2821 on the Thermistor 2 C.B.A. is 5kΩ ~ 1MΩ. If NG, replace the Temperature Sensor (R2821) on the Thermistor 2 C.B.A. Still NG, replace the Projection Unit. Still NG, replace the Main C.B.A.

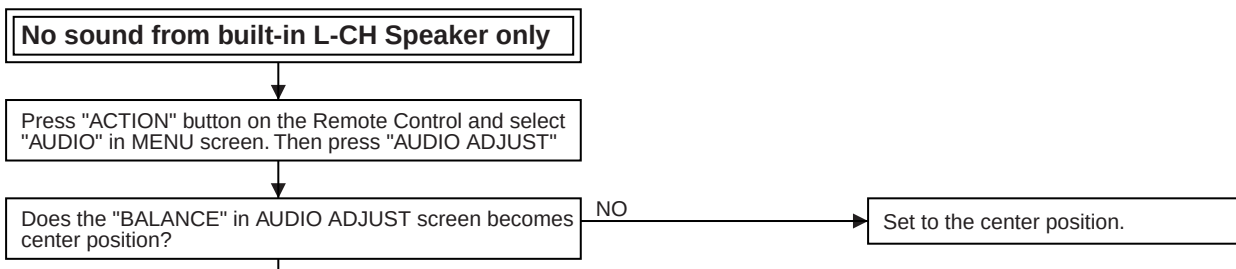
16) TEMP LED flashes 4 times every 5 seconds.
→ Cleaning the Air Filter.

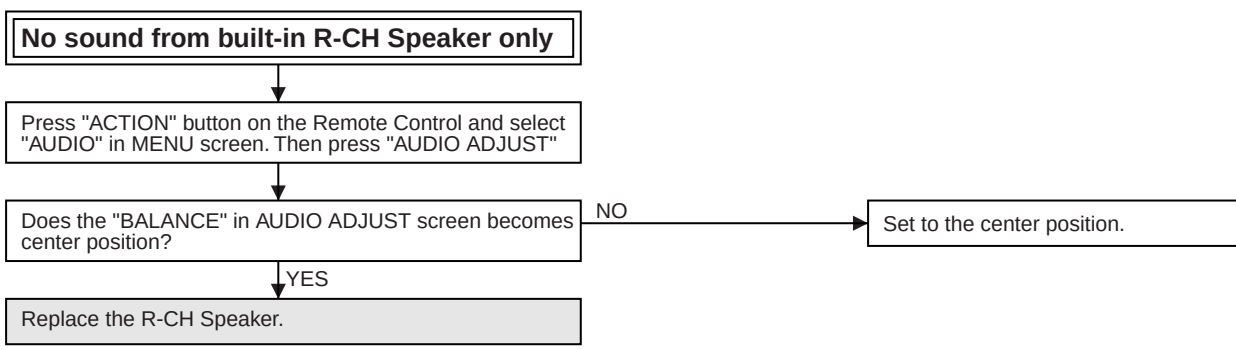
17) TEMP LED flashes 5 times every 5 seconds.
→ Cleaning the Air Filter. Still NG, replace the Projection Unit. Still NG, replace the Main C.B.A.

Power LED does not flashes or does not light up.
→ Replace the Power C.B.A. or the Main C.B.A.

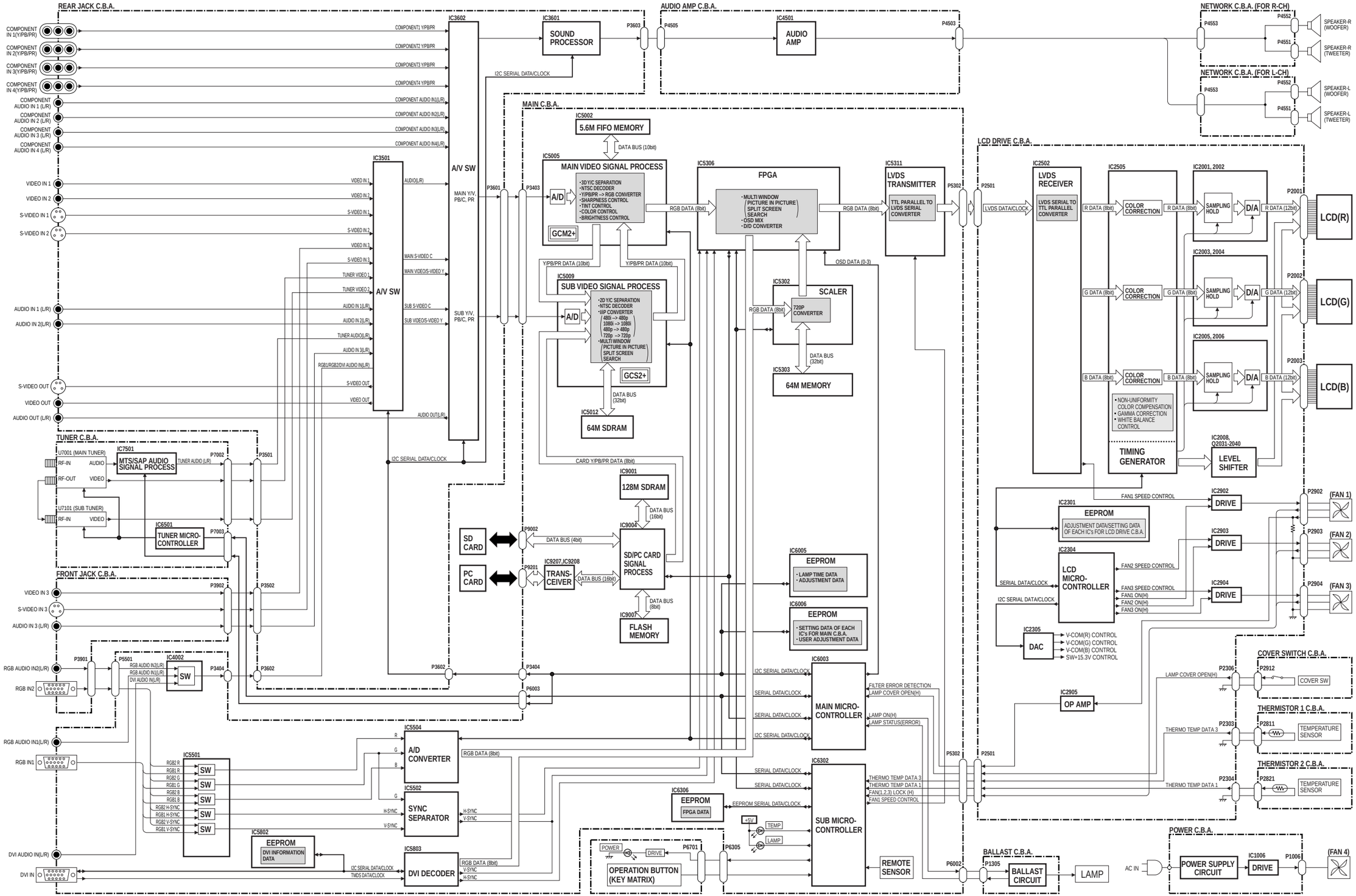

No picture or abnormal picture
ABNORMAL PICTURE:
・No Color Picture (Black and White picture)
・Abnormal Color Picture
・No Synchronization Picture
・Dark Picture
Check that there is no picture or abnormal picture on the screen from all input terminals.
(All input are NG.)
Does the OSD appear on the screen?
NO
Replace the Projection Unit. Still NG, replace the Main C.B.A.
YES
Replace the Main C.B.A.
(Only Video1 OR 2 input is NG.)
Replace the Rear Jack C.B.A.
(Only Video3 input is NG.)
Replace the Front Jack C.B.A. Still NG, replace Rear Jack C.B.A.
(Only tuner input is NG.)
Replace the Tuner C.B.A. Still NG, replace the Rear Jack C.B.A.
(Only RGB1 input is NG.)
Replace the Main C.B.A.
(Only RGB2 input is NG.)
Replace the Front Jack C.B.A. Still NG, replace the Main C.B.A.
(Only Component 1,2,3, OR 4 input is NG.)
Replace the Rear Jack C.B.A.
(Component 1,2,3, AND 4 input is NG.)
Replace the Main C.B.A. Still NG, replace the Rear Jack C.B.A.
(Only DVI input is NG.)
Replace the Main C.B.A.
(DVI AND RGB input is NG.)
Replace the Main C.B.A.
(Tuner, Component AND Video input is NG.)
Replace the Rear Jack C.B.A.
(PC/SD Card input is NG.)
Replace the Main C.B.A.


No sound from built-in both L-CH and R-CH Speakers
Press "ACTION" button on the Remote Control to display MENU screen, and select "AUDIO" in MENU screen.
Check if "SPEAKER" in AUDIO MENU is set to "ON."
NO
Select "ON."
YES
Check that there is an audio signal to the Audio Out Terminal from all input terminals.
(All input are NG.)
Replace the Rear Jack C.B.A.
(Only Audio1, 2, Component1, 2, 3, OR 4 input is NG.)
Replace the Rear Jack C.B.A.
(Only Audio3 input is NG.)
Replace the Front Jack C.B.A. Still NG, replace the Rear Jack C.B.A.
(Only Tuner input is NG.)
Replace the Tuner C.B.A. Still NG, replace the Rear Jack C.B.A.
(Only RGB1 input is NG.)
Replace the Main C.B.A.
(Only RGB2 input is NG.)
Replace the Front Jack C.B.A. Still NG, replace the Main C.B.A.
(Only DVI input is NG.)
Replace the Main C.B.A.
YES
Replace the Audio Amp C.B.A. Stll NG, Replace the Rear Jack C.B.A. Still NG, Replace the Power C.B.A.


No sound from built-in L-CH Speaker only
Press "ACTION" button on the Remote Control and select "AUDIO" in MENU screen. Then press "AUDIO ADJUST"
Does the "BALANCE" in AUDIO ADJUST screen becomes center position?
NO
Set to the center position.
YES
Replace the L-CH Speaker.

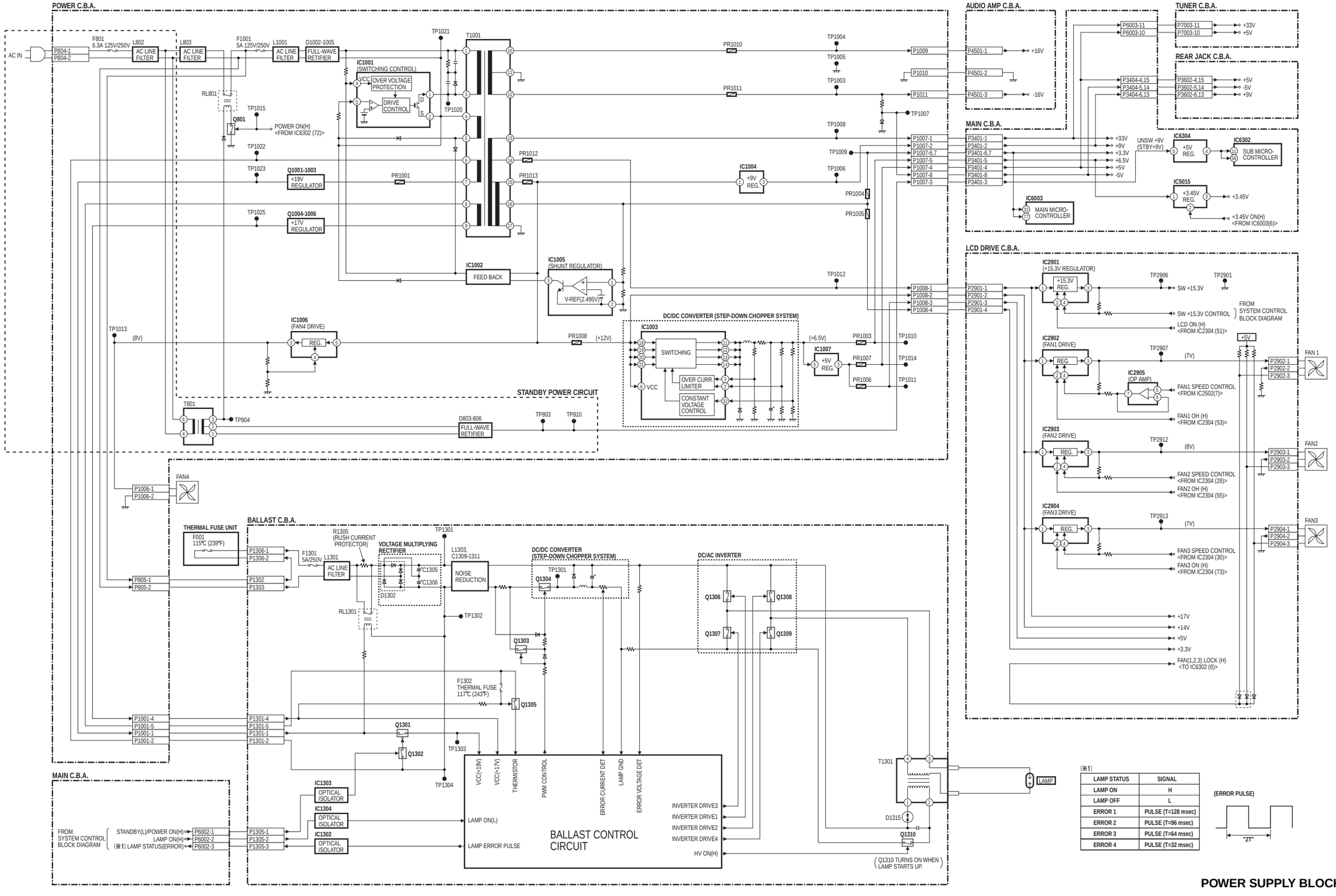

No sound from built-in R-CH Speaker only
Press "ACTION" button on the Remote Control and select "AUDIO" in MENU screen. Then press "AUDIO ADJUST"
Does the "BALANCE" in AUDIO ADJUST screen becomes center position?
NO
Set to the center position.
YES
Replace the R-CH Speaker.

OVERALL BLOCK DIAGRAM



OVERALL BLOCK DIAGRAM
PT-50LC13

POWER SUPPLY BLOCK DIAGRAM



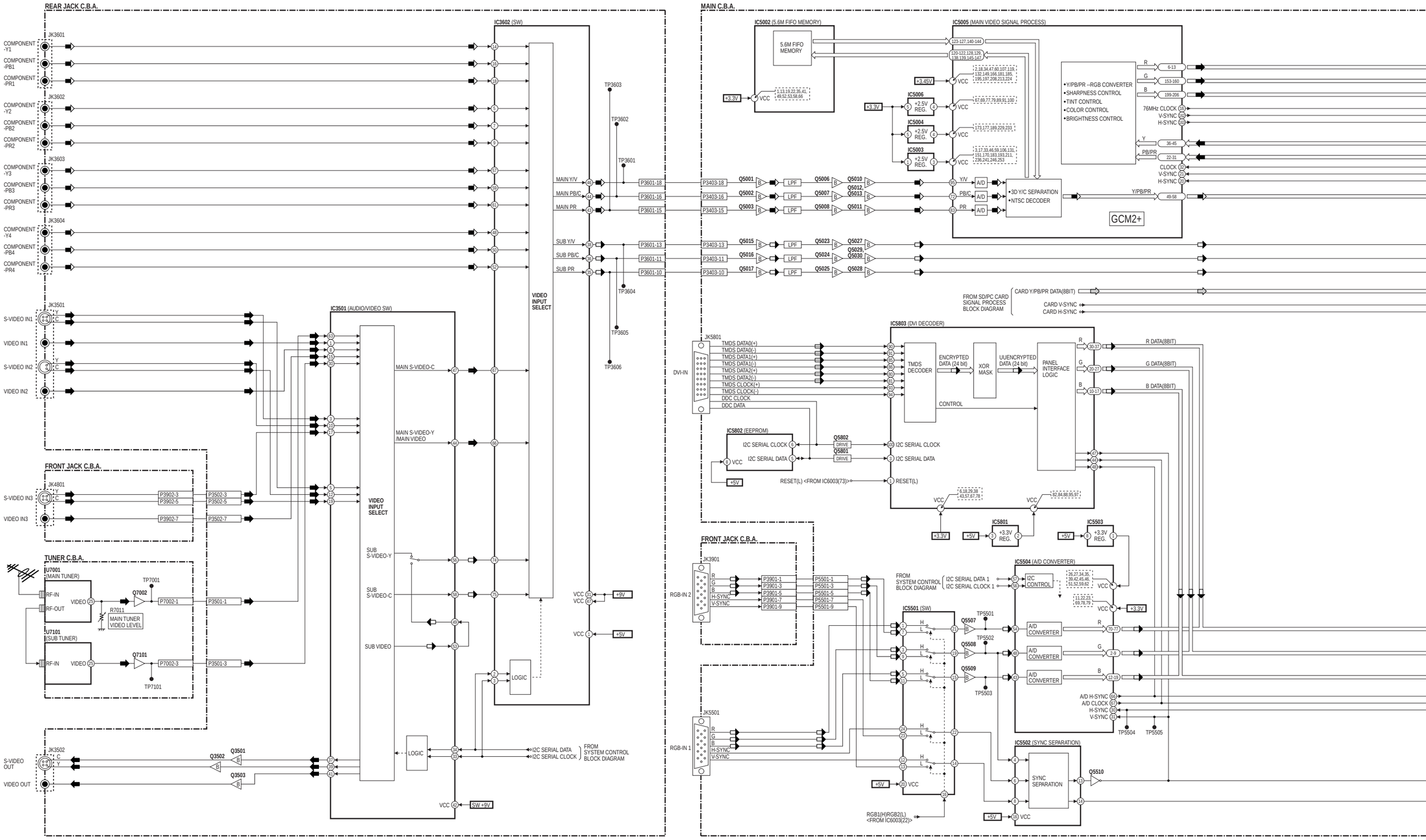
(※1)

LAMP STATUS	SIGNAL
LAMP ON	H
LAMP OFF	L
ERROR 1	PULSE (T=128 msec)
ERROR 2	PULSE (T=96 msec)
ERROR 3	PULSE (T=64 msec)
ERROR 4	PULSE (T=32 msec)

(ERROR PULSE)

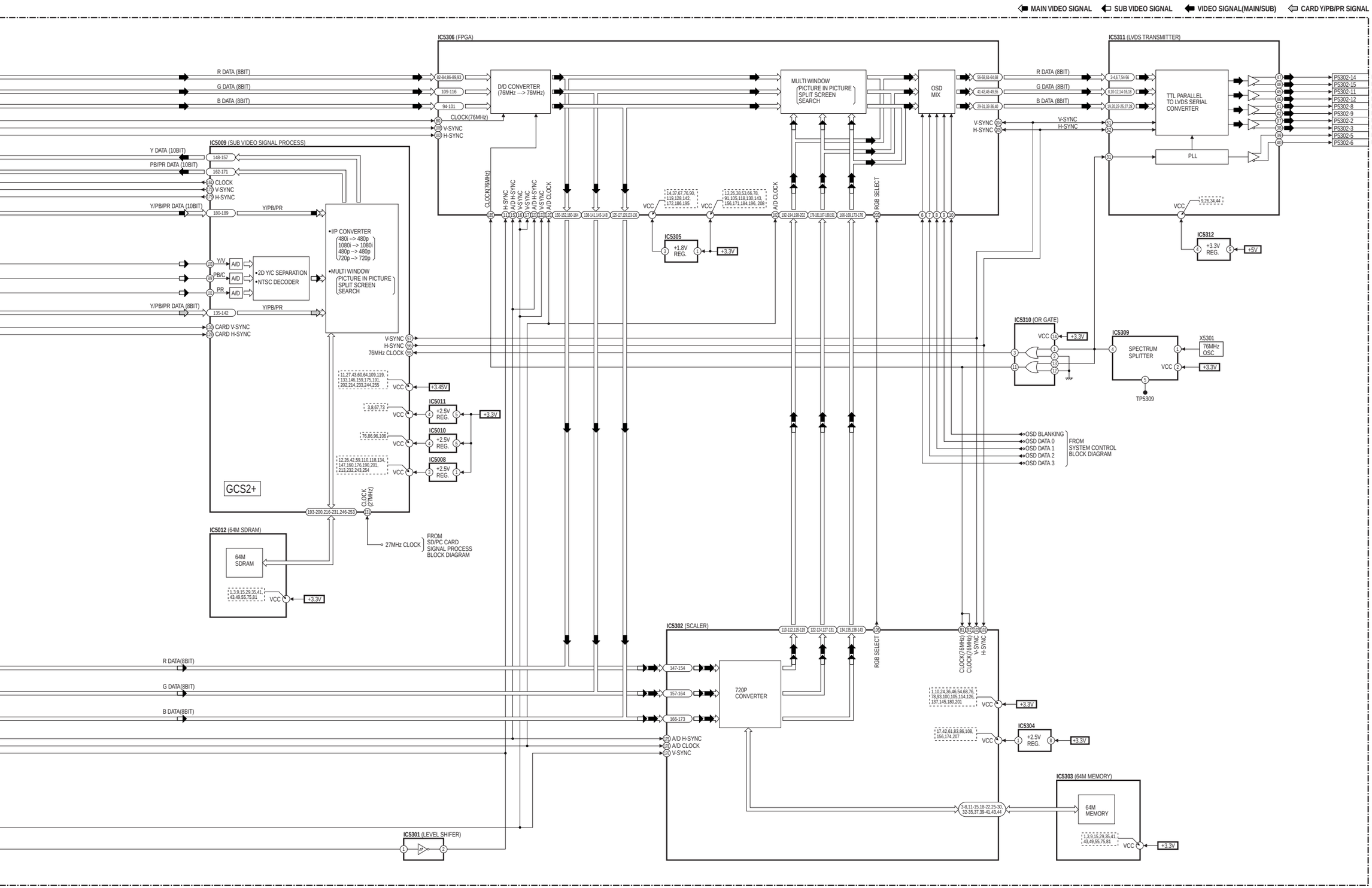
POWER SUPPLY BLOCK DIAGRAM
PT-50LC13

VIDEO SIGNAL PATH I BLOCK DIAGRAM (1/2)

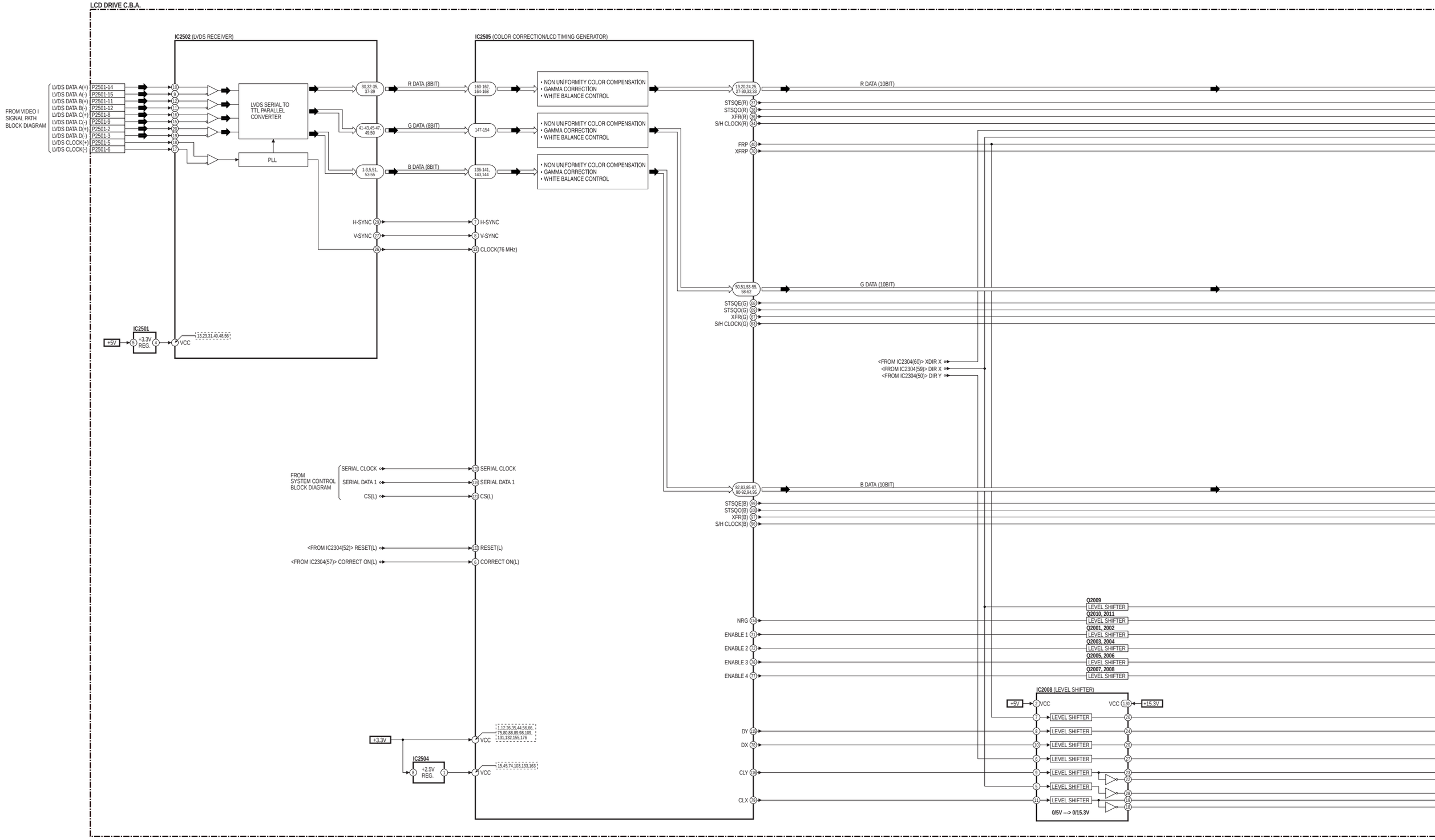


VIDEO SIGNAL PATH I BLOCK DIAGRAM (1/2)
PT-50LC13

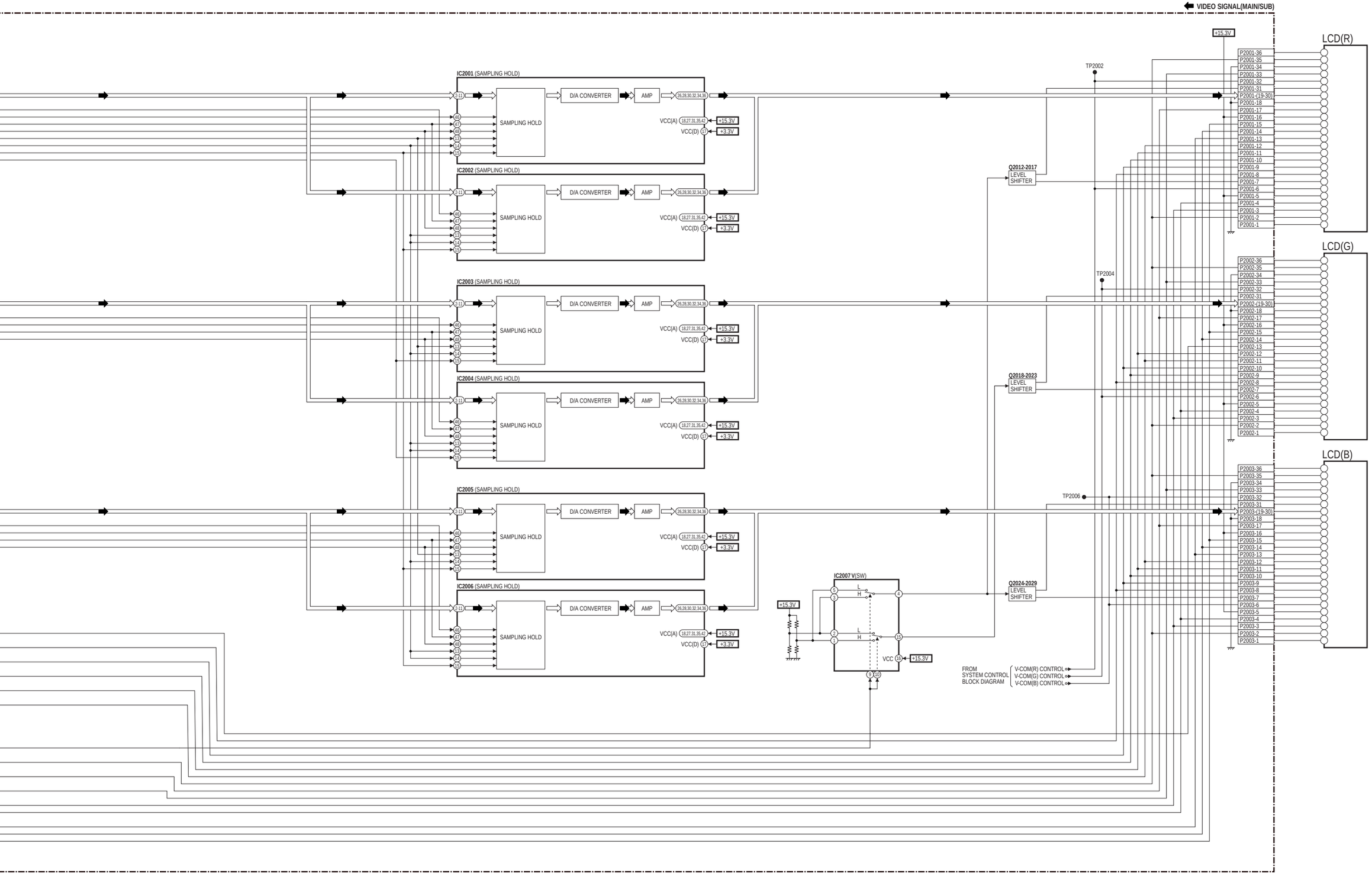
VIDEO SIGNAL PATH I BLOCK DIAGRAM (2/2)



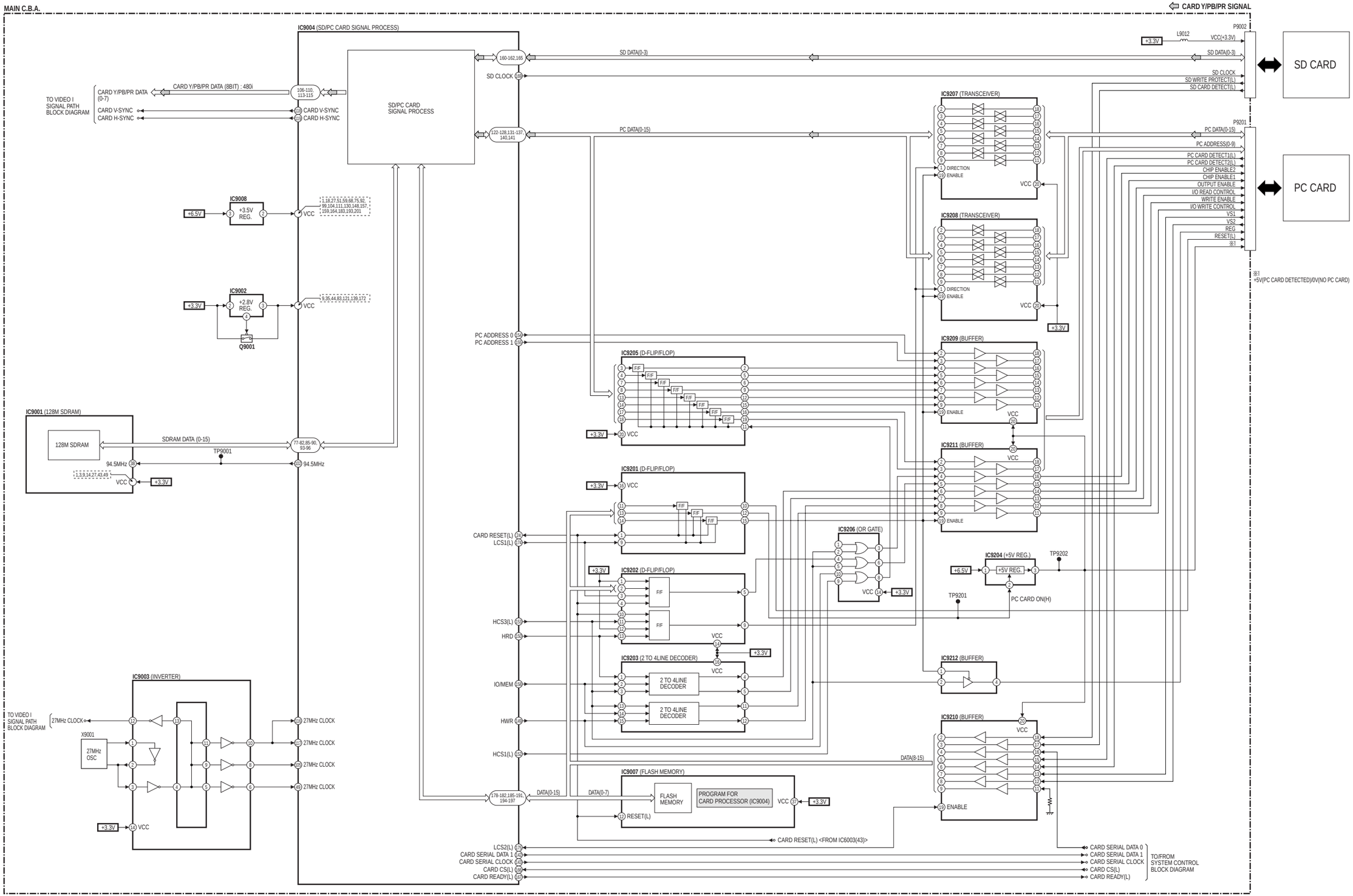
VIDEO SIGNAL PATH II BLOCK DIAGRAM (1/2)



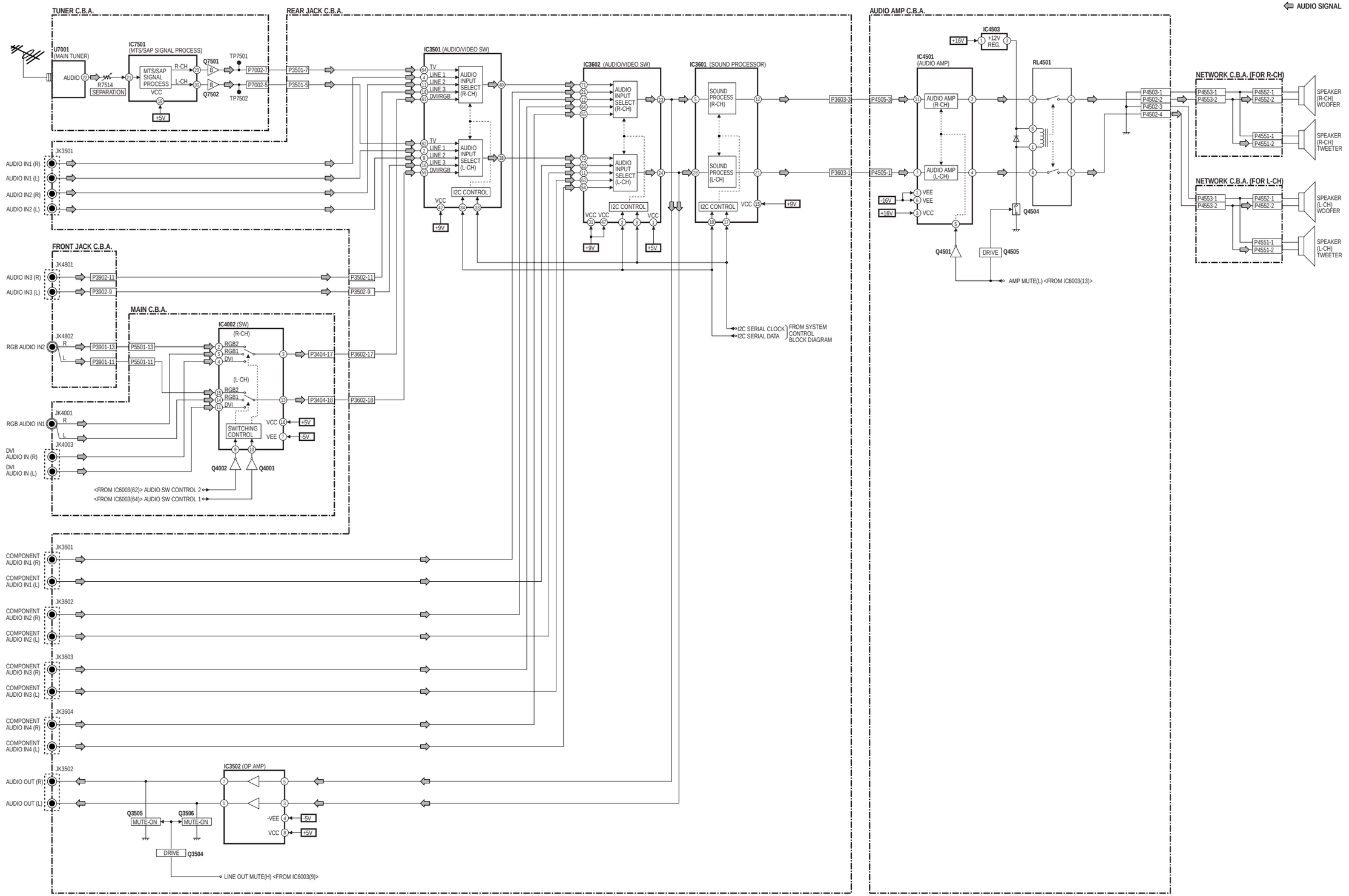
VIDEO SIGNAL PATH II BLOCK DIAGRAM (2/2)



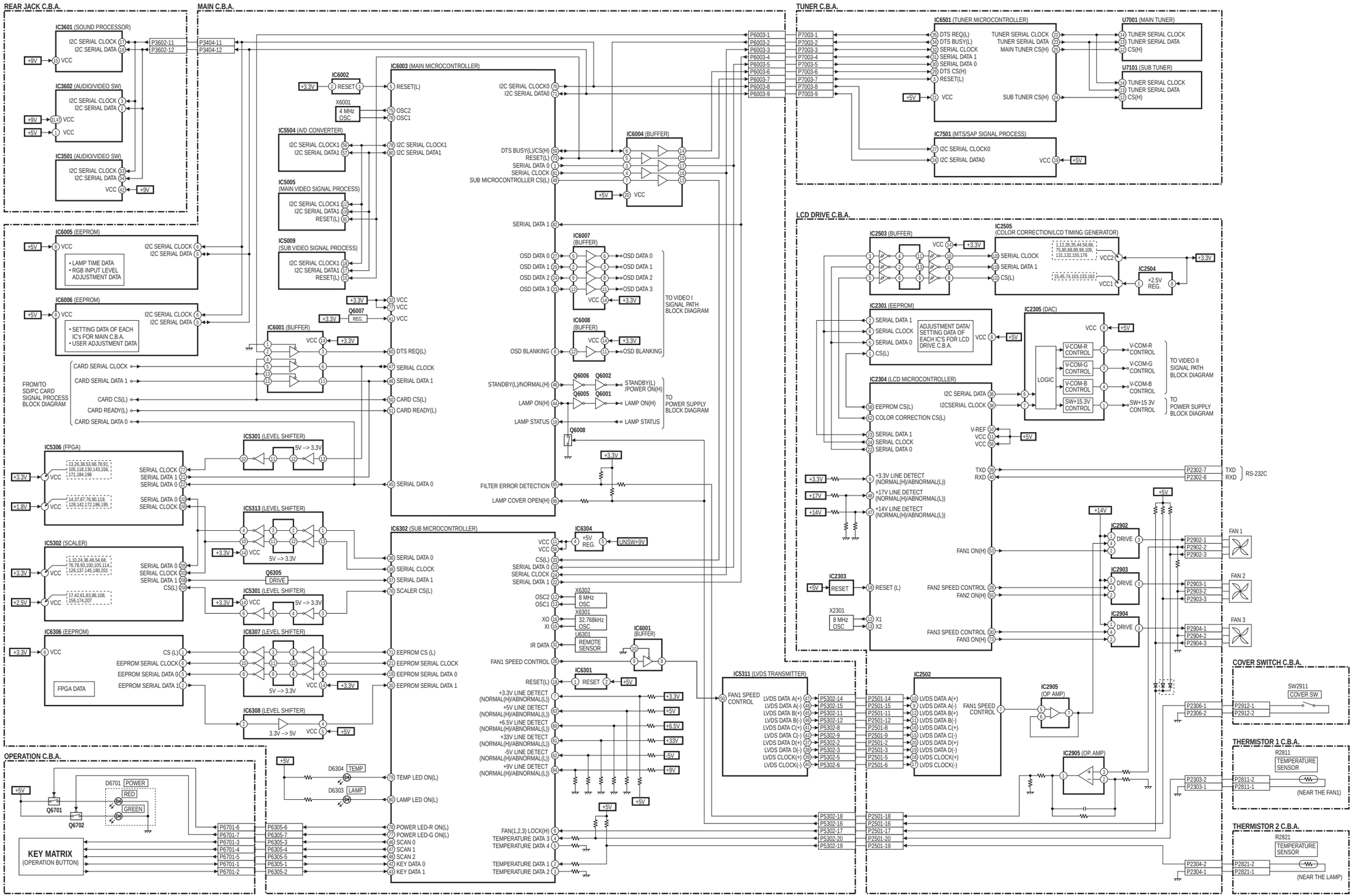
SD/PC CARD SIGNAL PROCESS BLOCK DIAGRAM



AUDIO SIGNAL PATH BLOCK DIAGRAM

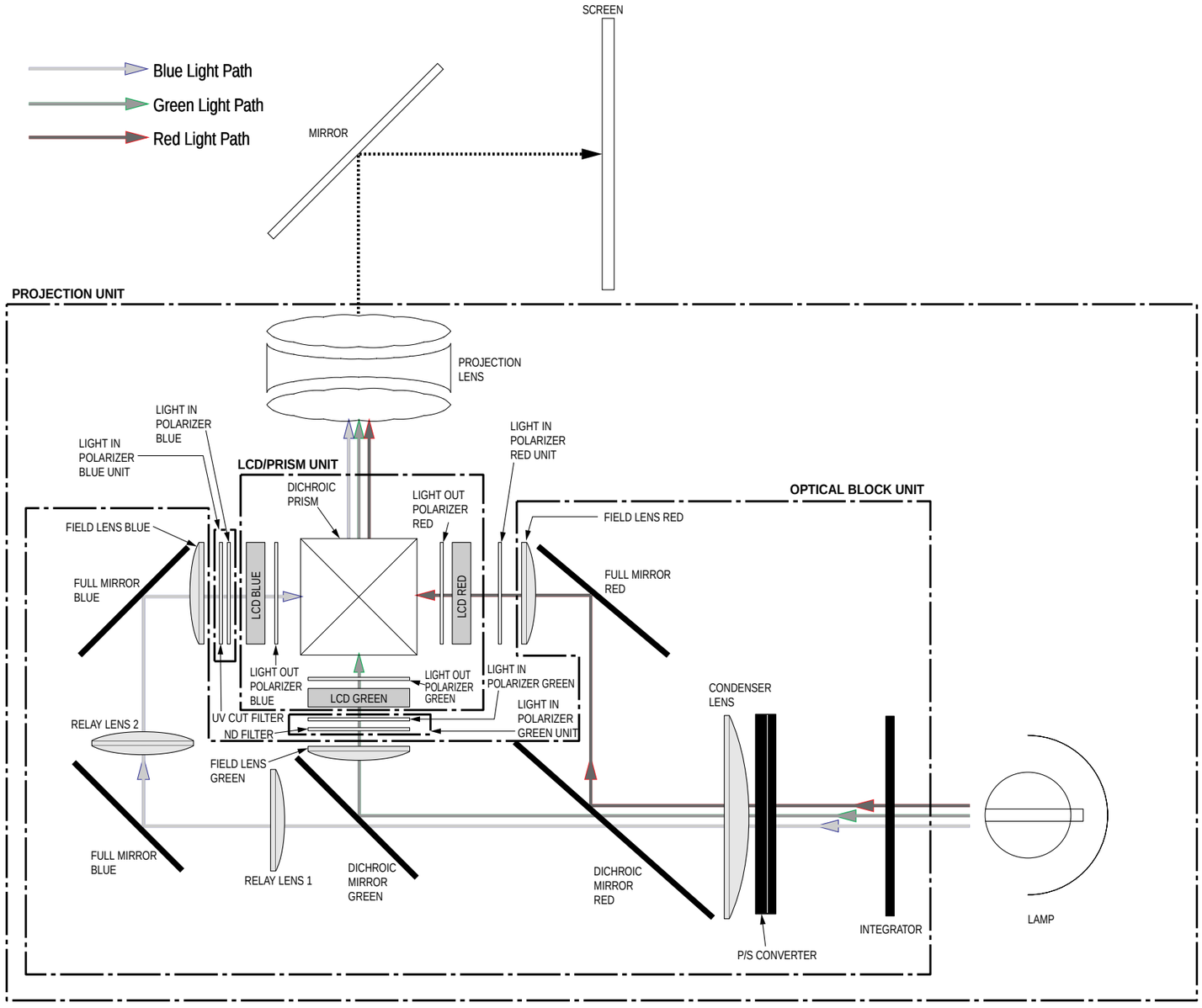


SYSTEM CONTROL BLOCK DIAGRAM



SYSTEM CONTROL BLOCK DIAGRAM
PT-50LC13

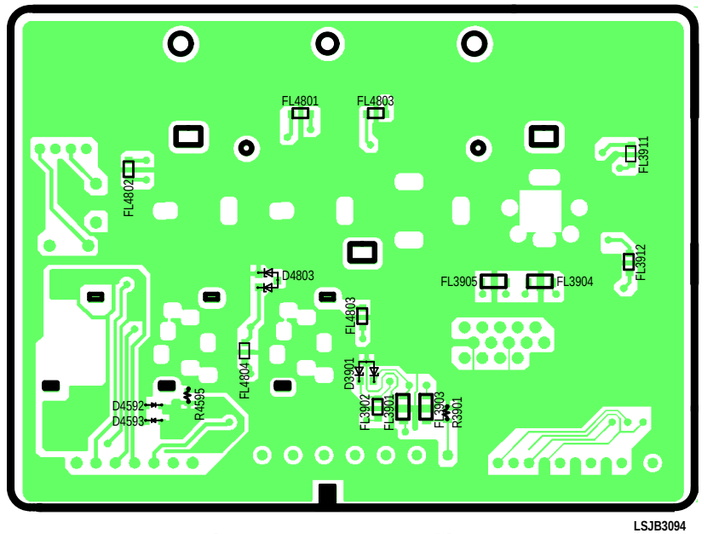
OPTICAL BLOCK DIAGRAM



FRONT JACK C.B.A. LSEP3094A

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

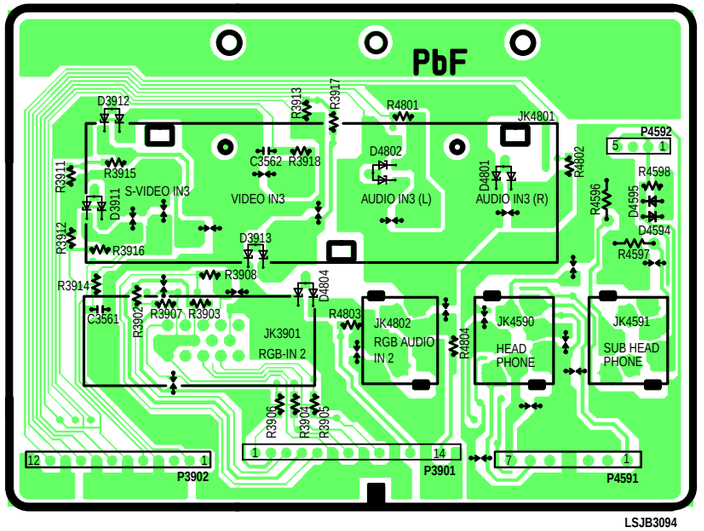
(COMPONENT SIDE)



LSJB3094

(DUAL PATTERNS)

(FOIL SIDE)

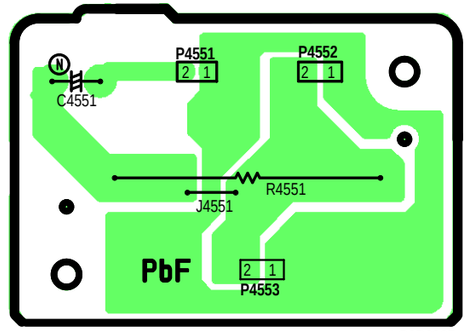


LSJB3094

(DUAL PATTERNS)

NETWORK C.B.A. LSEP3097A

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

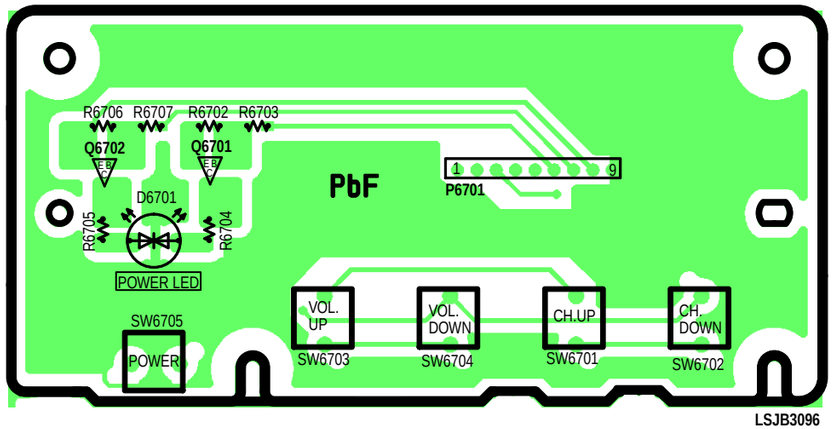


LSJB3097

OPERATION C.B.A. LSEP3096A

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

(FOIL SIDE)



LSJB3096

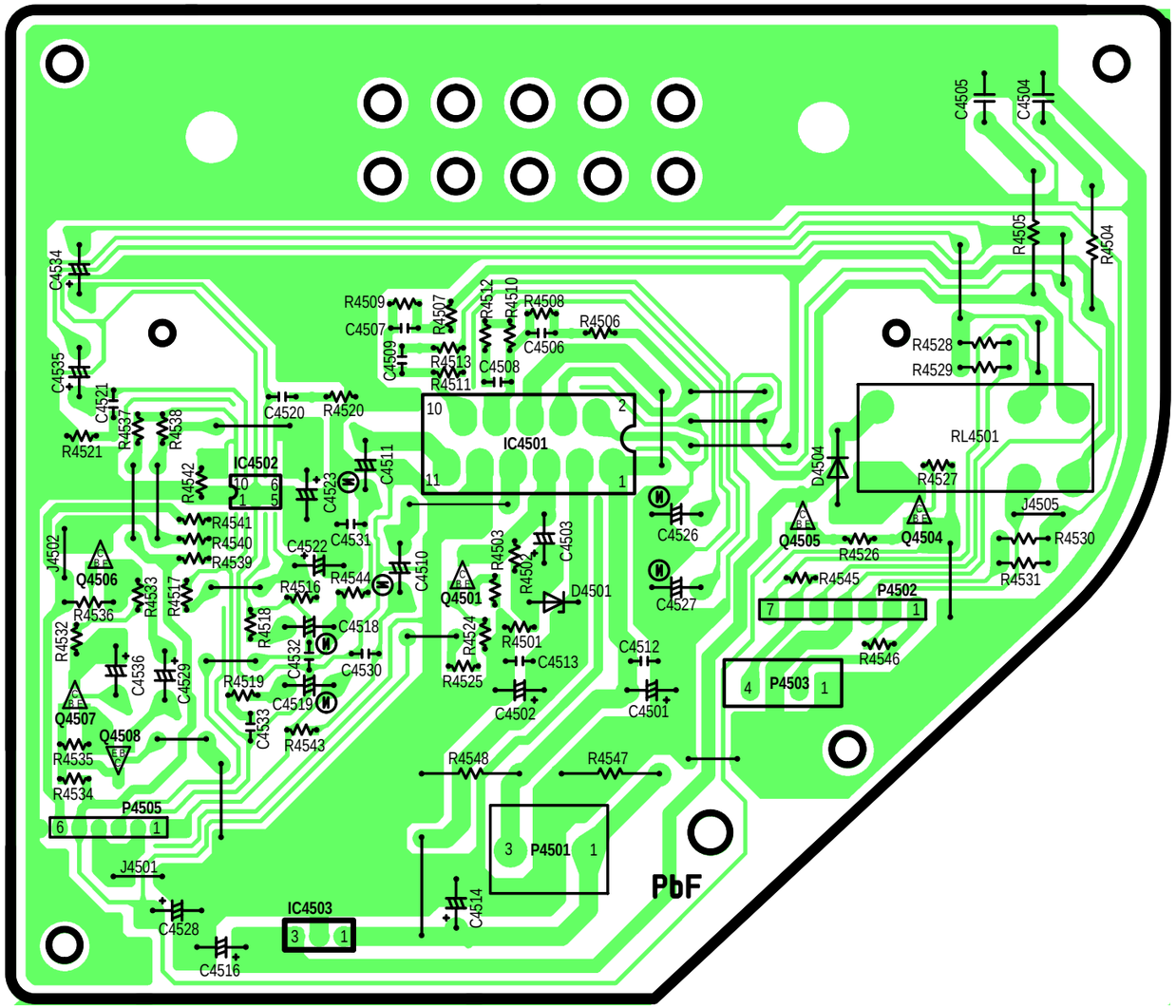
(DUAL PATTERNS)

FRONT JACK C.B.A. LSEP3094A
OPERATION C.B.A. LSEP3096A
NETWORK C.B.A. LSEP3097A
PT-50LC13

AUDIO AMP C.B.A. LSEP3092A

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

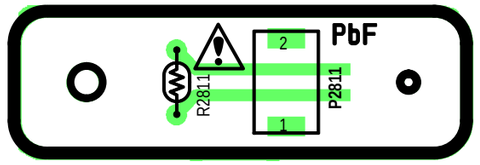
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



LSJB3092

THERMISTOR 1 C.B.A. LSEP3099A1

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

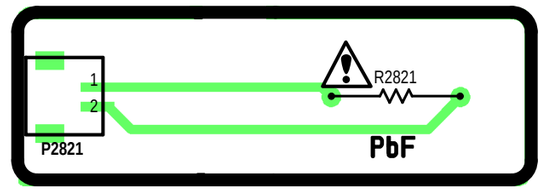


LSJB3099

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

THERMISTOR 2 C.B.A. LSEP3100A

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

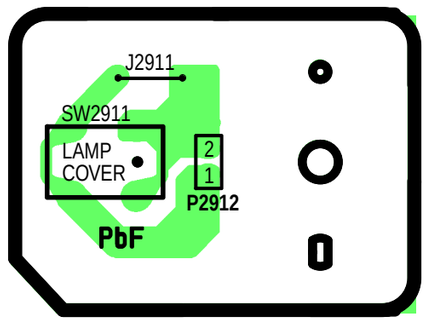


LSJB3100

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

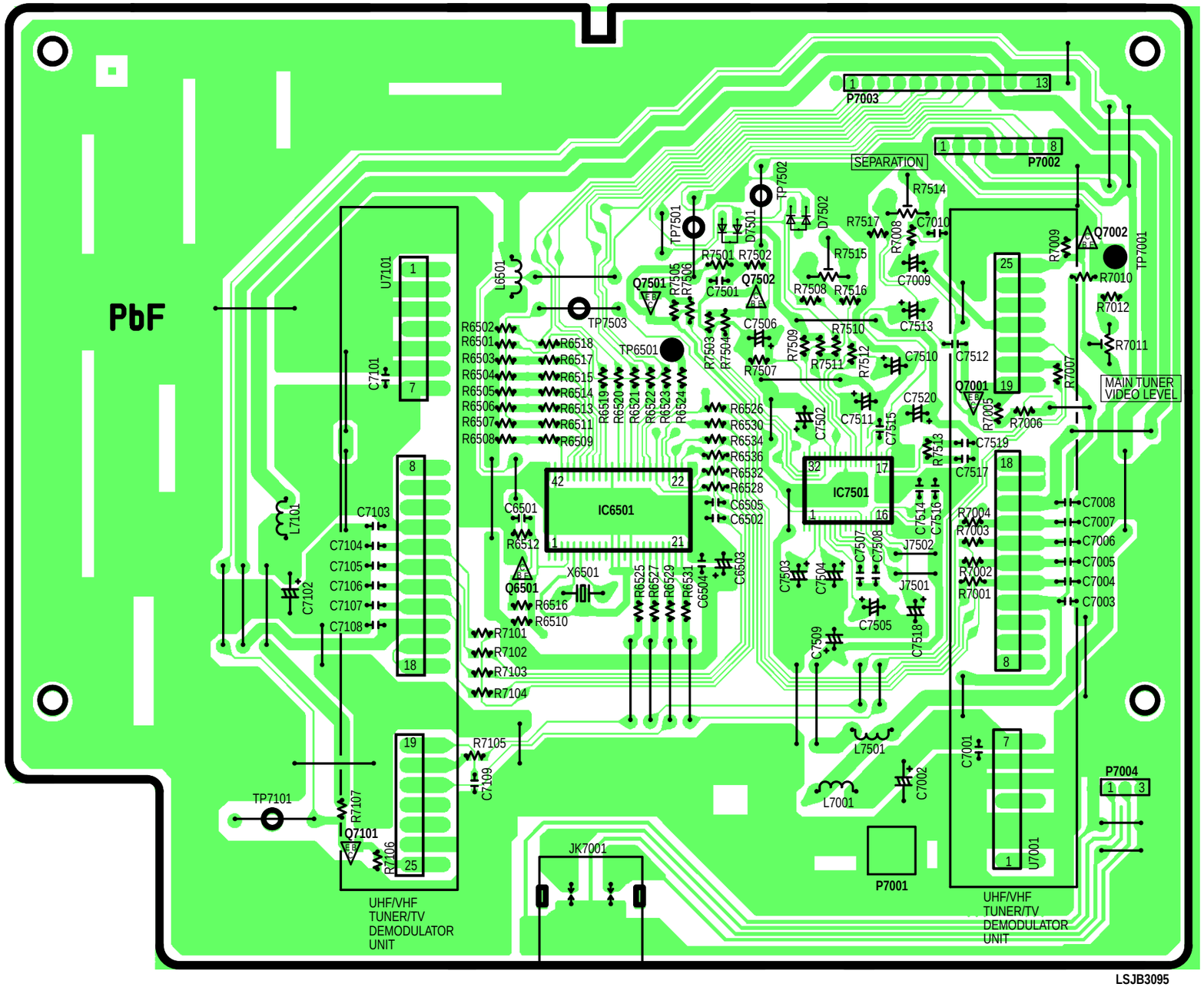
COVER SWITCH C.B.A. LSEP3098A

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.



LSJB3098

AUDIO AMP C.B.A. LSEP3092A
THERMISTOR 1 C.B.A. LSEP3099A1
THERMISTOR 2 C.B.A. LSEP3100A
COVER SWITCH C.B.A. LSEP3098A
PT-50LC13



LSJB3095

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   ● : Test point with a jumper wire across a hole in P.C.B.
   ○ : Test point with no test pin.

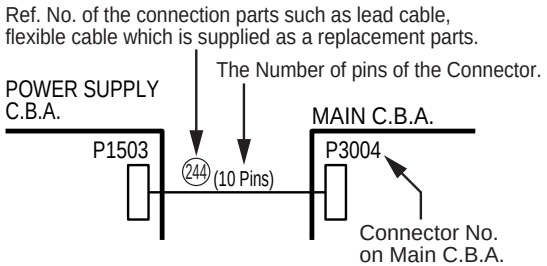
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

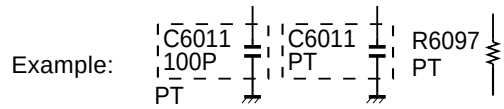
   Example:
   (6.2V).....Zener Voltage

2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to,
   in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.


Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
POWER SUPPLY C.B.A.
MAIN C.B.A.
P1503
244
(10 Pins)
P3004
Connector No. on Main C.B.A.

3. Parts marked "PT" are not used in any models included in this service model.



4. Jumper wires are used for WA10, WA5 etc and these are not supplied as replacement parts.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layout includes components which are not used.